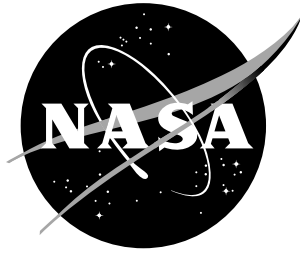


NASA/TM-2002-211447



# Evaluating the Effectiveness of the 1999–2000 NASA CONNECT Program

*Thomas E. Pinelli*  
*Langley Research Center, Hampton, Virginia*

*Kari Lou Frank*  
*College of William and Mary, Williamsburg, Virginia*

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February 2002

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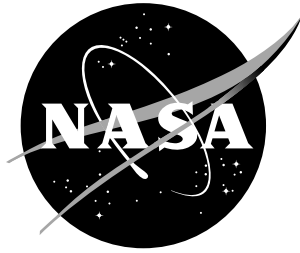
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*Thomas E. Pinelli*  
*Langley Research Center, Hampton, Virginia*

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National Aeronautics and  
Space Administration

Langley Research Center  
Hampton, Virginia 23681-2199

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## Abstract

*NASA CONNECT is a standards-based, integrated mathematics, science, and technology series of 30-minute instructional distance learning (satellite and television) programs for students in grades 6–8. Each of the seven programs in the 1999–2000 NASA CONNECT series included a lesson, an educator guide, a student activity or experiment, and a web-based component. In March 2000, a mail (self-reported) survey (booklet) was sent to a randomly selected sample of 1,000 NASA CONNECT registrants. A total of 336 surveys (269 usable) were received by the established cutoff date. The majority of survey questions employed a 5-point Likert-type response scale. Survey topics included (1) instructional technology and teaching; (2) instructional programming and technology in the classroom; (3) the NASA CONNECT program (television, lesson guide, classroom activity, web-based activity, and web site); (4) classroom environment; and (5) demographics. About 73 percent of the respondents were female, about 92 percent identified "classroom teacher" as their present professional duty, about 90 percent worked in a public school, and about 62 percent held a master's degree or master's equivalency. Regarding NASA CONNECT, respondents reported that (1) they used the seven programs in the 1999–2000 NASA CONNECT series; (2) the stated objectives for each program were met (4.54); (3) the programs were aligned with the national mathematics, science, and technology standards (4.57); (4) program content was developmentally appropriate for grade level (4.17); and (5) the programs in the 1999–2000 NASA CONNECT series enhanced/enriched the teaching of mathematics, science, and technology (4.51).*

## Introduction

The NASA Langley Research Center's Office of Education (OEd) has the primary responsibility within the Agency for distance learning and the integration of instructional technology. Through its Center for Distance Learning, the OEd has developed a suite of five distance learning programs. Collectively, the goals of the five programs include (1) increasing educational excellence; (2) enhancing and enriching the teaching of mathematics, science, and technology; (3) increasing scientific and technological literacy; and (4) communicating the results of NASA discovery, exploration, innovation, and research. NASA CONNECT is televised nationally and is used by almost 79,000 educators that represent almost 2.3 million students. More information about NASA CONNECT can be found at the following web site: <<http://connect.larc.nasa.gov>>.

Evaluation is critical to any program's success. To determine the effectiveness, as well as the credibility and validity of the series, we survey NASA CONNECT registrants. The evaluation of the NASA CONNECT series is an annual undertaking. This report contains the quantitative and qualitative results of our attempt to determine the effectiveness of the 1999–2000 NASA CONNECT program. The results of the 1998–1999 NASA CONNECT program evaluation appear in NASA TM-2000-210542 (Pinelli, Frank, and House, September 2000).

## Overview of NASA CONNECT

Produced by the Office of Education at NASA Langley Research Center in Hampton, Virginia, NASA CONNECT is designed to increase scientific literacy, improve the mathematics and science proficiency of students in grades 6–8, and increase the competency of mathematics and science educators. Now in its sixth year of production, the goals of this standards-based, Emmy award-winning distance learning program include (1) showing students the application of mathematics, science, and technology on the job; (2) presenting mathematics, science, and technology as disciplines that require creativity, critical thinking, and problem-solving skills; (3) demonstrating the integration of workplace mathematics, science, and technology as a collaborative process; (4) raising student awareness about careers that require mathematics, science, and technology; and (5) overcoming stereotyped beliefs by presenting women and minorities performing challenging engineering and science tasks.

The 1999–2000 NASA CONNECT series received numerous awards for program achievement, educational content, and video production. At the 1999 Capital Region Emmy Awards, two NASA CONNECT programs (*The Measurement of All Things* and *Geometry of Exploration: Eyes Over Mars*) received Emmys for Outstanding Program Achievement. Other awards for the 1999–2000 NASA CONNECT season include, but are not limited to a 2000 Telly award for *Proportionality: Modeling the Future*, a 2000 Cindy Gold Award for *Algebra: Mirror, Mirror on the Universe*, and a 2000 Crystal Award of Distinction for *Tools of the Aeronautics Trade*.

Now in its sixth year of production, NASA CONNECT is the oldest program in the NASA K-12 (precollege) distance learning initiative. In addition to the goals listed in the Overview, NASA CONNECT also seeks to create opportunities for parental and community involvement, attempts to link formal education (e.g., the school) with informal education (e.g., libraries, museums, and science centers), and also to link pre-service and in-service education. The NASA CONNECT model is research based, instructional rather than educational, result oriented, learner centered, technology focused, and feedback driven. NASA CONNECT is free to educators; however, educators must register to receive the lesson (teacher) guides. There are four ways to register for NASA CONNECT: (1) E-mail <connect@edu.larc.nasa.gov>; (2) online <<http://edu.larc.nasa.gov/connect/>>; (3) telephone 757-864-6100; and (4) U.S. mail: NASA CONNECT, Mail Stop 400, Office of Education, NASA Langley Research Center, Hampton, VA 23681-2199. The number of teachers registering for and the number of students viewing each program must be specified.

## Rights and Responsibilities

NASA CONNECT is a U.S. Government program and is not subject to copyright. No fees or licensing agreements are required to use programs in this series. Off-air rights are granted in perpetuity. Educators are granted unlimited rights for duplication, dubbing, broadcasting, cable casting, and web casting into perpetuity, with the understanding that all NASA CONNECT materials will be used for educational purposes. Neither the broadcast nor the lesson guide may be used, either in whole or in part, for commercial purposes without the expressed written consent of NASA CONNECT.

## Production and Delivery

Programs in the 1999–2000 series were live broadcasts. They comply with the specifications found in the National Educational Telecommunications Association (NETA) Common-Sense Guide to Technical

Excellence. Programs ran 28 minutes and 30 seconds. Each program was broadcast (delivered) via KU- and C-band satellite transmission. Public Television System (PBS) affiliates, statewide television systems such as T-STAR, district wide television systems, and cable access channels carried NASA CONNECT. NASA CONNECT is also web cast via the NASA Learning Technology Channel. The NASA CONNECT web site has the satellite coordinates and broadcast dates and times.

## **Availability**

For a minimal fee, educators can obtain the NASA CONNECT videos and print materials from the NASA Central Operation of Resources for Educators (CORE). Videos and print materials are also available from the NASA Educator Resource Center (ERC).

### **NASA CORE**

15181 State Route 58 South

Oberlin, OH 44074-9799

Phone: (440) 775-1400

Fax: (440) 775-1460

E-mail: [nasaco@leeca.esu.k12.oh.us](mailto:nasaco@leeca.esu.k12.oh.us)

URL: <http://CORE.spacelink.nasa.gov>

## **The Importance of Evaluation**

Formative and summative evaluation is critical to any program's success. A 2001 CEO Forum School Technology and Reading Report states that assessment should become an ongoing part of instruction to inform and enhance teaching and learning and to promote student achievement (CEO Forum, 2001). NASA CONNECT is a tool for enhancement/enrichment; the only way to gauge the effectiveness of that tool is to assess how it is being used by classroom teachers. Evaluation is important for numerous reasons and plays an important role in the evolution of distance education (Hawkes, 1996). First, evaluation improves the credibility and validity of a program (Wade, 1999). Second, evaluation can be used to make changes in the program. (Ramirez, 1999). The flexibility for change is particularly important because of the dynamism inherent both in education and technology. According to Dr. Lawrence T. Frase, Executive Director of the Research Division of Cognitive and Instructional Science at the Educational Testing Service, The major issue for educational technology in the next millennium will be the effectiveness of its adaptation to social, scientific, and political change (Wade, *THE Journal*, 2000). Third, evaluation can help determine the effectiveness of a program (Hazari and Schnorr, 1999). Because of the wide array of information that can be reaped from the evaluation process, the Office of Education conducts an ongoing quantitative and qualitative assessment of NASA CONNECT.

The Office of Education continues to develop new methods for evaluating NASA CONNECT. The 1999–2000 NASA CONNECT season is the first season that can be evaluated from a longitudinal perspective (by comparing the 1999–2000 NASA CONNECT evaluation data with the 1998–1999 NASA CONNECT evaluation data). This comparison will provide the Office of Education with a more realistic benchmark from which to evaluate the NASA CONNECT series. Moreover, national data concerning teacher demographics, classroom environments, and teacher perceptions of instructional technology have also been infused into the 1999–2000 NASA CONNECT evaluation report, which allows the data received through NASA CONNECT's evaluation process to be compared to other national studies. In future seasons, the Office of Education may expand evaluation to also include classroom observation by skilled observers and student feedback by means of short surveys. In summary, the Office of Education continually strives to improve the evaluation process by creating more diverse and in-depth measurement

techniques. As stated by Michael Hawkes, by using an array of evaluation techniques and including everyone involved in the delivery of distance learning (parents, teachers, students) in data collection activities, evaluation tasks will not appear as ominous as they once did. More important, school leaders will be able to assess whether distance education technologies are part of the solution to improved learning and instruction (Hawkes, p. 33, 1996).

## **Methodology**

A sample of 1,000 registrants was randomly drawn from the NASA CONNECT database. A mail (self-reported) survey/questionnaire was sent to the sample group in early March 2000. The survey contained 109 questions, 10 of which dealt with demographics (appendix A). Those receiving the survey could select from three options: (1) they could complete the survey and return it, (2) they could write “not applicable” on the survey and return it, and (3) they could ask to receive a free copy of the final assessment report. (All individuals who returned a survey received a complimentary NASA educational CD-ROM.) A total of 269 usable surveys were received by the established cutoff date. Additionally, 67 surveys marked “not applicable” were also received by the established cutoff date. Reasons given for not completing the survey were logged in the database (appendix B). The overall response rate for the 1999–2000 NASA CONNECT evaluation project was approximately 34 percent.

In addition to the quantitative data collected, the Office of Education also recorded all qualitative data that were received during the 1999–2000 NASA CONNECT season. These comments came from the evaluation booklet, e-mail correspondence with educators, traditional mailings to educators, and telephone conversations. Comments were divided into two categories: Responses to Qualitative Questions in the 1999–2000 Evaluation Booklet (appendix C) and Unsolicited Qualitative Comments (appendix D). The qualitative data collected were also incorporated into the changes suggested for the 2000–2001 NASA CONNECT season.

## **Demographics**

The evaluation booklet contained a variety of demographic questions, the answers to which could be used to establish the respondents’ profile, the classroom environment, and teacher/student computer use. Demographic findings for survey respondents follow:

- About 73 percent of the respondents were female.
- About 32 percent of the respondents were located in suburban school districts, 34 percent in rural school districts, and 34 percent in urban school districts.
- About 92 percent of the respondents identified “classroom teacher” as their present professional duty.
- About 90 percent of the respondents worked in a public school.
- About 62 percent of the respondents held a master’s degree or master’s equivalency.
- About 87 percent of the respondents identified themselves as Caucasian.
- The mean and median ages of the respondents were 43.9 and 45, respectively.
- The mean and median “years as a professional educator” were 14.9 and 13, respectively.



- About 94 percent of the respondents owned a personal computer.
- About 75 percent of the respondents indicated membership in a professional (national) mathematics or science educational organization.
- The mean and median number of years respondents have used NASA CONNECT were 1.09 and 1 year, respectively.

The demographic makeup of the 1999–2000 respondents differed rather significantly from the makeup of the 1998–1999 respondents, despite the same random sampling method. In general, the 1999–2000 respondent pool was more uniform than the 1998–1999 respondent pool. For example, the 1999–2000 pool contained more women (73 percent in 1999–2000, 68 percent in 1998–1999); more Caucasians (87 percent in 1999–2000, 74 percent in 1998–1999); and more classroom teachers (92 percent in 1999–2000; 88 percent in 1998–1999). Additionally, the number of respondents owning personal computers increased by 18 percent and the number of respondents belonging to a professional mathematics or science educational organization increased by 30 percent as compared to 1998–1999 survey demographics. Both increases are significant, and these demographic changes should be considered when evaluating the 1999–2000 data.

## Presentation of the Data

The survey questions were divided among nine topics. The respondents were asked to react to questions about instructional technology and programming in the classroom and to items specifically related to the NASA CONNECT program series. Findings for the remaining nine topics are presented in this section. The topic results are reported in terms of mean ratings when the survey items involve a 5-point Likert scale and percentages when the questions require other responses. Each question was calculated based on the number of respondents that answered that particular question ( $n$ ) rather than from the total population of respondents ( $N$ ). Where it exists, data collected as part of the 1998–1999 NASA CONNECT evaluation project are provided after the data for the 1999–2000 NASA CONNECT season; for example, ( $\bar{x} = 4.66/\bar{x} = 4.55$ ) indicates that the mean for 1999–2000 was 4.66 and the mean for 1998–1999 was 4.55).

### Topic 1: Instructional Technology and Teaching

Respondents were asked to rate seven statements related to instructional technology and teaching (table 1). The highest mean rating ( $\bar{x} = 4.66/\bar{x} = 4.55$ ) was given to the statement that instructional technology enables teachers to be more creative. The next highest mean ratings were given to the statements that technology enables teachers to teach more effectively ( $\bar{x} = 4.55/\bar{x} = 4.51$ ), accommodates different learning styles ( $\bar{x} = 4.51/\bar{x} = 4.51$ ), and increases student motivation and enthusiasm for learning ( $\bar{x} = 4.50/\bar{x} = 4.51$ ). At slightly lower mean ratings, the respondents reported that instructional technology increases student learning and comprehension ( $\bar{x} = 4.44/\bar{x} = 4.41$ ) and student willingness to discuss content and exchange ideas ( $\bar{x} = 4.29/\bar{x} = 4.23$ ). The lowest mean rating ( $\bar{x} = 4.02/\bar{x} = 4.07$ ) was given to the statement that instructional technology is effective with virtually all students.

Table 1. Instructional Technology and Teaching

Question:	Mean	Median	Standard deviation	Minimum	Maximum	Count (n)
Instructional technology						
Enables teachers to teach more effectively.	4.55	5	0.71	2	5	263
Enables teachers to accommodate different learning styles.	4.51	5	0.69	2	5	263
Enables teachers to be more creative.	4.66	5	0.56	2	5	262
Increases student learning and comprehension.	4.44	5	0.70	3	5	263
Increases student willingness to discuss content/exchange ideas.	4.29	4	0.79	2	5	256
Increases student motivation and enthusiasm for learning.	4.50	5	0.66	3	5	261
Is effective with virtually all types of students.	4.02	4	1.01	1	5	262

(n) denotes number of responses.

## Topic 2: Instructional Programming and Technology in the Classroom

### *Instructional Programming*

Respondents were asked to react to four statements about instructional technology programming intended for use in the classroom (table 2). Higher mean ratings were given to the statements that schools have increasingly greater access to instructional technology programs ( $\bar{x} = 4.01/\bar{x} = 4.25$ ) and that the majority of the programs are of good quality ( $\bar{x} = 3.76/\bar{x} = 3.86$ ). Lower mean ratings were assigned to the statements that the majority of the programs are *not* easily broken into “teachable” units ( $\bar{x}=2.91/\bar{x} = 2.78$ ) and that the majority of the programs are *not* appropriate (for example, too advanced or too basic) for their students ( $\bar{x} = 2.89/\bar{x} = 2.65$ ). It is important to note that for all four of these questions, optimistic teacher attitudes concerning instructional programming have decreased since the 1998-1999 survey. In general, teachers surveyed for the 1999–2000 season reported that their perception of access to instructional technology programs and quality of those programs (including “teachability” and appropriateness) have decreased since the 1998–1999 survey. These results are consistent with one

Table 2. Instructional Programming

Question:	Mean	Median	Standard deviation	Minimum	Maximum	Count (n)
Increasingly, schools have greater access to instructional programs.	4.01	4	0.98	1	5	261
The majority of these programs are of good quality.	3.76	4	0.88	1	5	254
The majority of these programs are not appropriate (i.e., too advanced or too basic) for my students.	2.89	3	1.15	1	5	244
The majority of these programs are not easily broken into "teachable" units.	2.91	3	1.23	1	5	245

(n) denotes number of responses.

of the conclusions of the 2001 CEO Forum Report on school technology, which stated that for instructional technology to be positively received, state, district, and local policies, education programs, and resource allotment must be aligned in order to attain goals (CEO Forum, 2001). Teachers are looking for more than the mere existence of instructional programming; they are looking for programming that is easily accessible and aligned with educational goals.

### ***Instructional Technology***

Respondents completing the survey reacted to three statements concerning the actual use of instructional technology in the classroom (table 3). Respondents gave the highest mean rating ( $\bar{x} = 3.93/\bar{x} = 4.13$ ) to the statements that (1) administrators support and encourage teachers to use instructional technology in the classroom and (2) classrooms are growing increasingly rich in instructional technology ( $\bar{x} = 3.68/\bar{x} = 3.60$ ). The lowest rating was given to statement (3): teachers are generally positive about introducing/using instructional technology in the classroom ( $\bar{x} = 3.38/\bar{x} = 3.37$ ). Among these three questions, the largest decrease was in relation to administrator support and encouragement for use of instructional technology. This decrease is an important finding because support and encouragement of both instructional technology training and use by teachers are integral to the success of instructional technology programs (Philipkoski, 2000).

Respondents were also given a list of seven factors that could prohibit or limit the integration of technology into their instructional programs. They were asked to indicate which of these factors they considered barriers to integrating technology into their instruction (fig. 1). Respondents were not limited to selecting one factor; they could select all factors that applied. Respondents indicated that lack of access to computers was the greatest barrier (79 percent), followed by lack of time in the schedule for technology projects (64 percent), not enough computer software (58 percent), lack of teacher training (52 percent), lack of knowledge about how to integrate technology into the curriculum (50 percent), and lack of technical support (47 percent). The failure of purchased software to be installed was reported as the factor least affecting the integration of technology in the classroom (18 percent).

Table 3. Instructional Technology

Question:	Mean	Median	Standard deviation	Minimum	Maximum	Count (n)
Administrators support and encourage teachers to use instructional technology in the classroom.	3.93	4	1.18	1	5	254
Classrooms are growing increasingly rich in instructional technology.	3.68	4	1.13	1	5	262
Teachers are generally positive about introducing/using instructional technology in the classroom.	3.38	3	1.10	1	5	263

(n) denotes number of responses.

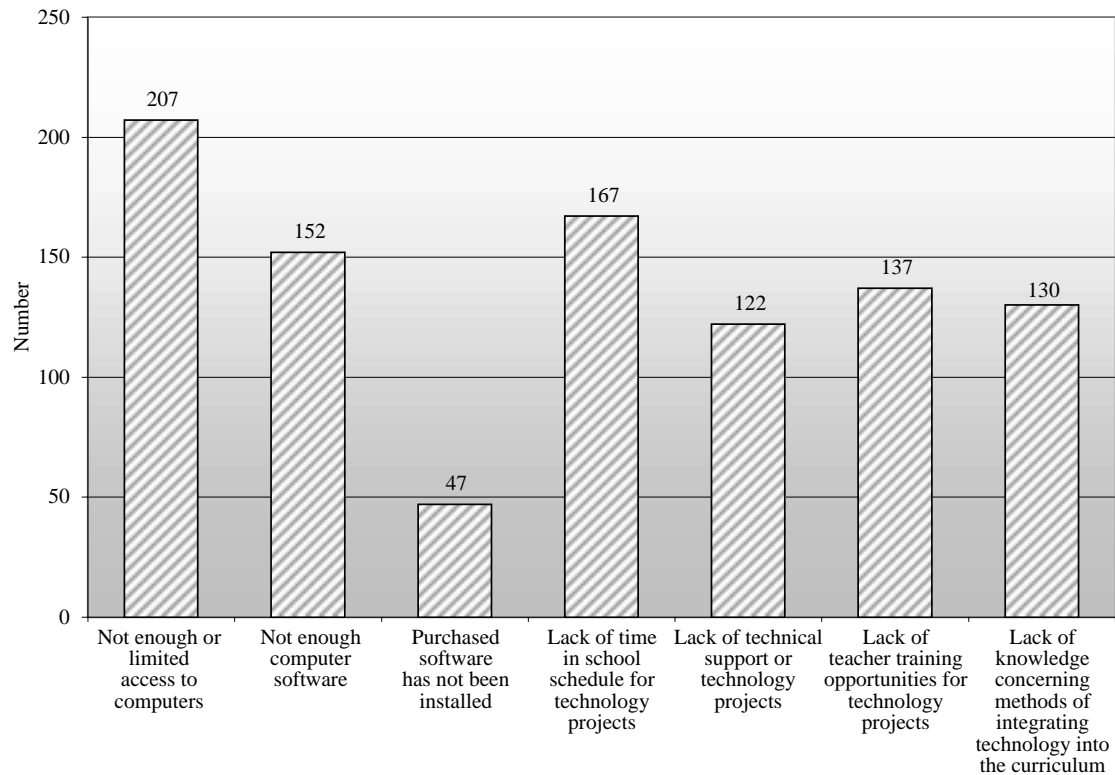


Figure 1. Q15: Factors that are barriers to integrating technology into instructional program (n = 269).

### Topic 3: Overall Assessment of NASA CONNECT

Respondents were asked to assess the seven programs in the 1999–2000 NASA CONNECT series (table 4). The highest mean ratings were given in response to the statement that the NASA CONNECT series presented mathematics, science, and technology as a process requiring creativity, critical thinking, and problem-solving skills ( $\bar{x} = 4.63/\bar{x} = 4.58$ ) and the statement that the NASA CONNECT program presented workplace mathematics, science, and technology as a collaborative process ( $\bar{x} = 4.59/\bar{x} = 4.42$ ). High mean ratings were also given to the alignment of program content with the national mathematics, science, and technology standards ( $\bar{x} = 4.57/\bar{x} = 4.61$ ); the presentation of workplace mathematics, science, and technology on the job ( $\bar{x} = 4.55/\bar{x} = 4.49$ ); and the presentation of women and minorities performing challenging engineering and science tasks ( $\bar{x} = 4.55$ ). Respondents also agreed that the programs met their stated objectives ( $\bar{x} = 4.54/\bar{x} = 4.49$ ) and that the programs raised student awareness about careers that require mathematics, science, and technology ( $\bar{x} = 4.54/\bar{x} = 4.44$ ). The lowest mean ratings were given to the statement that program content was developmentally appropriate for the grade level ( $\bar{x} = 4.17/\bar{x} = 4.25$ ) and the statement that program content was easily integrated into the curriculum ( $\bar{x} = 4.14/\bar{x} = 4.09$ ). One noteworthy comparison between the 1998–1999 and 1999–2000 data is that although the statements receiving the highest mean rating changed, the same two statements received the lowest rating both years (programs are developmentally appropriate for the grade level and programs are easily integrated into the curriculum). Therefore, one core area of improvement for NASA CONNECT is developmental appropriateness and ease of integration.

Table 4. Overall Assessment of NASA CONNECT Program

Question:	Mean	Median	Standard deviation	Minimum	Maximum	Count (n)
The programs met their stated objectives.	4.54	5	0.68	1	5	188
The program content was developmentally appropriate for the grade level.	4.17	4	0.89	1	5	196
The program content was aligned with the national mathematics, science, and technology standards.	4.57	5	0.60	3	5	192
The program content was easily integrated into the curriculum.	4.14	4	1.00	1	5	189
The program content enhanced the teaching of mathematics, science, and technology.	4.51	5	0.69	2	5	193
The programs raised student awareness about careers that require mathematics, science, and technology.	4.54	5	0.66	2	5	190
The programs presented the application of mathematics, science, and technology on the job.	4.55	5	0.60	2	5	193
The programs presented workplace mathematics, science, and technology as a collaborative process.	4.59	5	0.60	2	5	190
The programs presented mathematics, science, and technology as a process requiring creativity, critical thinking, and problem-solving skills.	4.63	5	0.56	2	5	193
The programs presented women and minorities performing challenging engineering and science tasks.	4.55	5	0.63	2	5	185

(n) denotes number of responses.

#### Topic 4: NASA CONNECT Television/Video Programs

Respondents were asked if they used the seven programs at the time they were received (table 5). The percentage of “yes” responses varied from 44 percent for program 1 (*The Measurement of All Things: Tools of the Aeronautics Trade*) to 20 percent for Program 7 (*Algebra: Mirror, Mirror on the Universe*). The percentage of “no” responses varied from 23 percent for program 7 to a low of 12 percent for program 1. Overall, the percentage of respondents indicating that they “may use the program in the future” ranged from 61 percent for program 4 (*Geometry of Exploration: Eyes Over Mars*) to 44 percent for program 1.

Table 5. Use of NASA CONNECT Television/Video Programs

Question: Did you use the following programs?	Yes		No		May in the future		Count
Program	Percent	(n)	Percent	(n)	Percent	(n)	(N)
1: <i>The Measurement of All Things: Tools of the Aeronautics Trade</i>	44	108	12	28	44	109	245
2: <i>The Measurement of All Things: Atmospheric Detectives</i>	34	79	14	33	52	119	231
3: <i>Geometry of Exploration: Water Below the Surface of Mars</i>	27	66	18	44	55	133	243
4: <i>Geometry of Exploration: Eyes Over Mars</i>	19	41	21	46	61	135	222
5: <i>Proportionality: X-Plane Generation</i>	27	65	16	37	57	136	238
6: <i>Proportionality: Modeling the Future</i>	24	52	17	39	59	133	224
7: <i>Algebra: Mirror, Mirror on the Universe</i>	20	46	23	53	57	132	231

(n) denotes number of responses.

(N) denotes total population of respondents.

Respondents who used the NASA CONNECT programs were asked to identify how they used them in their classes (table 6). Respondents were asked to choose from four possible uses for each of the seven programs: (1) to introduce a curriculum topic, objective, or skill; (2) to reinforce a curriculum topic, objective, or skill; (3) as a special interest topic; and (4) for some other purpose. The highest percentage of respondents indicated that they used the programs to reinforce a curriculum topic, objective, or skill (ranging from 34 percent for program 7 to 43 percent for programs 2, 3, and 6). The least common reported use of NASA CONNECT programs was “for some other purpose.” Respondents who selected this statement were provided space to indicate how they used the NASA CONNECT program. Responses ranged from “to encourage interest in our science fair” to “for talented and gifted curriculum enrichment.”

Table 6. How NASA CONNECT Programs Are Used in the Classroom

Program	1		2		3		4		5		6		7	
Use	Percent	(n)	Percent	(n)	Percent	(n)	Percent	(n)	Percent	(n)	Percent	(n)	Percent	(n)
To introduce a curriculum topic, objective, or skill	33	59	27	32	24	23	22	17	29	28	23	18	25	17
To reinforce a curriculum topic, objective, or skill	37	66	43	51	43	40	37	29	38	37	43	33	34	24
As a special interest topic	21	37	22	26	25	24	29	23	27	26	25	19	30	21
For some other purpose	9	15	8	9	8	8	12	9	6	7	9	7	11	8

(n) denotes number of responses

## Program Delivery

Respondents were then asked whether they viewed each of the seven programs live, taped, or via both methods (table 7). Most respondents did not view the programs live (only 4 to 15 percent of respondents viewed the program live); rather the programs were taped and viewed at a later time (59–78 percent of the respondents indicated that they taped the programs). Only a small percentage of respondents reported that they viewed the program both live and taped (ranging from 2–4 percent, depending on the NASA CONNECT program). Respondents could also indicate that they did not view the program. Responses for “not viewed” ranged from a low of 13 percent for program 1 to a high of 32 percent for program 7.

Respondents who used the program were then asked to indicate the method by which they received the program (table 8). Five options for program receipt were given: (1) PBS, (2) downloaded it, (3) media specialist taped it, (4) I or someone else taped it, or (5) NASA sent me the tapes. In all, 229 individuals responded to this question, and each respondent was asked to select all the methods of receipt that applied. The most common method of receipt reported was for a media specialist to tape the program (24 percent), followed by NASA sending the tapes (20 percent), receiving the program via PBS (20 percent), and taping the program (18 percent). The least common method of receiving the 1999–2000 NASA CONNECT program was downloading the program from the Internet (8 percent). A follow-up question regarding receipt of the NASA CONNECT program inquired whether the respondent experienced any difficulty obtaining any of the programs in the 1999–2000 series. Of the 216 respondents to this question, 110 (51 percent) indicated experiencing difficulty obtaining the programs.

Table 7. Viewing Programs

Question: How did you view the following programs?	Live		Taped		Both		Not viewed	
Program:	Percent	(n)	Percent	(n)	Percent	(n)	Percent	(n)
1: <i>The Measurement of All Things: Tools of the Aeronautics Trade</i>	7	8	78	87	2	2	13	15
2: <i>The Measurement of All Things: Atmospheric Detectives</i>	8	7	75	69	2	2	15	14
3: <i>Geometry of Exploration: Water Below the Surface of Mars</i>	8	6	69	52	3	2	20	15
4: <i>Geometry of Exploration: Eyes Over Mars</i>	13	9	61	43	4	3	23	16
5: <i>Proportionality: X-Plane Generation</i>	5	4	72	56	4	2	20	16
6: <i>Proportionality: Modeling the Future</i>	7	5	63	44	3	2	27	19
7: <i>Algebra: Mirror, Mirror on the Universe</i>	4	3	59	40	4	3	32	22

(n) denotes number of responses.

Table 8. Receiving Program (N = 229)

Question: How did you receive the program?	Yes		No	
	Percent	(n)	Percent	(n)
PBS	20	46	12	27
Downloaded it	8	18	13	29
Media specialist taped it	24	56	12	27
I or someone else taped it	18	42	11	25
NASA sent me the tapes	20	45	11	26

(n) denotes number of responses.

### *Grades Viewing the NASA CONNECT Programs*

Respondents who used the 1999–2000 NASA CONNECT series were asked to report which grade levels viewed the programs (fig. 2). The largest percentage of students viewing the 1999–2000 NASA CONNECT series were sixth graders (20 percent) and eighth graders (20 percent). This result differs slightly from the results of the 1998–1999 study, where the most common grade levels reported were grade five (37 percent) and grade six (36 percent). The least common grade levels to view the 1999–2000 NASA CONNECT programs were grades three (2 percent) and four (4 percent).

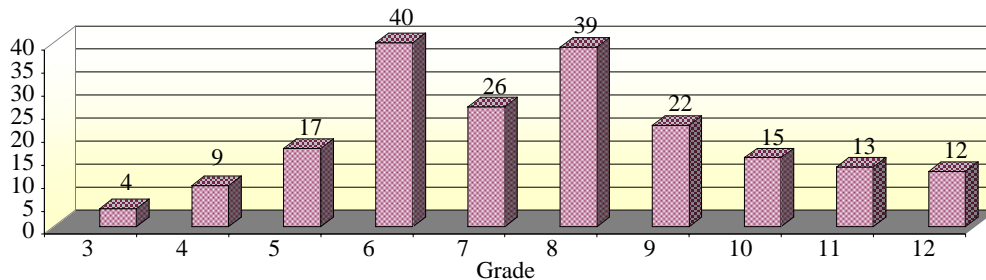


Figure 2. Q19: Grade levels that viewed programs (n = 197).

### *Quality of the Television/Video Programs*

The last component of the NASA CONNECT television/video program evaluation process asked respondents to evaluate program content and quality by indicating their level of agreement with fifteen statements (table 9). The statements receiving the strongest support from the respondents were the programs demonstrated the application of mathematics, science, and technology on the job ( $\bar{x} = 4.62$ ); the programs illustrated the integration of workplace mathematics, science, and technology ( $\bar{x} = 4.59$ ); and the programs presented mathematics, science, and technology as disciplines requiring creativity, critical thinking, and problem-solving skills ( $\bar{x} = 4.56$ ). High marks were also given to the statements that the programs enhanced the integration of mathematics, science, and technology ( $\bar{x} = 4.55$ ); the programs raised student awareness of careers that require mathematics, science, and technology ( $\bar{x} = 4.52$ ); and the programs presented women and minorities performing challenging engineering and scientific tasks ( $\bar{x} = 4.51$ ). The lowest scores were attributed to the statements that the programs were easily incorporated into the curriculum ( $\bar{x} = 4.08$ ), the programs were developmentally appropriate for the grade level ( $\bar{x} = 4.06$ ), and the programs were effective with virtually all types of students ( $\bar{x} = 3.99$ ).



Table 9. Quality of NASA CONNECT Television/Video Programs

Question:	Mean	Median	Standard deviation	Minimum	Maximum	Count (n)
The programs were of good artistic quality.	4.36	4	0.70	1	5	168
The programs were of good technical quality.	4.49	5	0.64	1	5	172
The programs enabled me to accommodate different learning styles.	4.16	4	0.78	2	5	168
The programs increased student willingness to discuss/exchange ideas.	4.17	4	0.80	2	5	162
The programs increased student enthusiasm for learning.	4.25	4	0.76	2	5	161
The programs were effective with virtually all types of students.	3.99	4	0.96	2	5	159
The programs were a valuable instructional aid.	4.44	5	0.72	2	5	168
The programs were developmentally appropriate for the grade level.	4.06	4	0.91	1	5	164
The programs were easily incorporated into the curriculum.	4.08	4	0.93	2	5	160
The programs enhanced the integration of mathematics, science, and technology.	4.55	5	0.67	2	5	166
The programs raised student awareness of careers that require mathematics, science, and technology.	4.52	5	0.69	2	5	164
The programs demonstrated the application of mathematics, science, and technology on the job.	4.62	5	0.61	3	5	165
The programs presented mathematics, science, and technology as disciplines requiring creativity, critical thinking, and problem-solving skills.	4.56	5	0.57	3	5	165
The programs illustrated the integration of workplace mathematics, science, and technology.	4.59	5	0.59	3	5	167
The programs presented women and minorities performing challenging engineering and scientific tasks.	4.51	5	0.61	2	5	162
The programs were a positive link between the classroom activity and the web-based activity.	4.38	5	0.74	2	5	136

(n) denotes number of responses.

## Topic 5: NASA CONNECT Lesson Guides

### *Use of Lesson Guides*

Respondents were asked if they used the lesson guides they received as part of their registration with the NASA CONNECT series (table 10). The percentage of “yes” responses varied from 50 percent for program 1 (*The Measurement of All Things: Tools of the Aeronautics Trade*) to 22 percent for program 7 (*Algebra: Mirror, Mirror on the Universe*). The percentage of “no” responses varied from a high of 22 percent for program 7 to a low of 10 percent for program 1. Overall, the percentage of respondents indicating that they “may use the program in the future” ranged from 58 percent for program 4 (*Geometry of Exploration: Eyes Over Mars*) to 40 percent for program 1.

Table 10. Use of Lesson Guides

Question: Did you use the lesson guides for the following programs?	Yes		No		May in the future		Count
Program:	Percent	(n)	Percent	(n)	Percent	(n)	(N)
1: <i>The Measurement of All Things: Tools of the Aeronautics Trade</i>	50	109	10	22	40	87	218
2: <i>The Measurement of All Things: Atmospheric Detectives</i>	43	89	11	22	46	94	205
3: <i>Geometry of Exploration: Water Below the Surface of Mars</i>	33	67	17	35	50	104	206
4: <i>Geometry of Exploration: Eyes Over Mars</i>	26	50	16	32	58	113	195
5: <i>Proportionality: X-Plane Generation</i>	32	66	16	33	51	105	204
6: <i>Proportionality: Modeling the Future</i>	28	55	16	32	56	109	196
7: <i>Algebra: Mirror, Mirror on the Universe</i>	22	44	22	43	56	109	196

(n) denotes number of responses.

(N) denotes total population of respondents.

### *Quality of the Lesson Guides*

The respondents were asked to react to seven statements about the quality of the NASA CONNECT lesson guides (table 11). They gave the statement about the teacher “background” portion being a valuable instructional aid the highest mean rating ( $\bar{x} = 4.54$ ), followed by the statement that the lesson guides were a valuable instructional aid ( $\bar{x} = 4.52/\bar{x} = 4.40$ ). High scores were also given to the statement that the print and electronic resources were valuable ( $\bar{x} = 4.47$ ), the directions were easily understood ( $\bar{x} = 4.44/\bar{x} = 4.16$ ), and the layout of the lesson guides presented information clearly ( $\bar{x} = 4.42/\bar{x} = 4.28$ ). The statement that the cue cards provided a positive link between the video and lesson guide ( $\bar{x} = 4.22$ ) and the statement that the lesson guide was easily downloaded from the Internet ( $\bar{x} = 4.13$ ) received the lowest mean ratings.

Table 11. Quality of NASA CONNECT Lesson Guides

Question:	Mean	Median	Standard deviation	Minimum	Maximum	Count (n)
The directions/instructions in the lesson guides were easily understood.	4.44	5	0.76	1	5	171
The layout of the lesson guides presented the information clearly.	4.42	5	0.75	2	5	172
The lesson guides were a valuable instructional aid.	4.52	5	0.71	2	5	170
The print and electronic resources in the lesson guide were a valuable instructional aid.	4.47	5	0.70	2	5	159
The cue cards provided a positive link between the video and the lesson guide.	4.22	4	0.90	1	5	124
The teacher “background” portion of the lesson guide was a valuable instructional aid.	4.54	5	0.70	1	5	158
The lesson guide was easy to download from the Internet.	4.13	5	1.23	1	5	89

(n) denotes number of responses.

## Topic 6: NASA CONNECT Classroom Activities/Experiments

### *Use of the Classroom Activities/Experiments*

Respondents were asked if they used the classroom activities/experiments included with the NASA CONNECT series (table 12). The percentage of “yes” responses varied from 42 percent for program 1 (*The Measurement of All Things: Tools of the Aeronautics Trade*) to 18 percent for program 6 (*Proportionality: Modeling the Future*). The percentage of “no” responses varied from a high of 22 percent for program 7 to a low of 12 percent for program 1. Overall, the percentage of respondents indicating that they “may use the program in the future” ranged from 65 percent for program 4 (*Geometry of Exploration: Eyes Over Mars*) to 46 percent for program 1.

Table 12. Use of Classroom Activity

Question: Did you use the classroom activity for the following programs?	Yes		No		May in the future		Count
Program:	Percent	(n)	Percent	(n)	Percent	(n)	(N)
1: <i>The Measurement of All Things: Tools of the Aeronautics Trade</i>	42	94	12	27	46	103	224
2: <i>The Measurement of All Things: Atmospheric Detectives</i>	36	74	13	27	51	105	206
3: <i>Geometry of Exploration: Water Below the Surface of Mars</i>	24	49	15	32	61	126	207
4: <i>Geometry of Exploration: Eyes Over Mars</i>	19	36	16	30	65	123	189
5: <i>Proportionality: X-Plane Generation</i>	26	53	15	31	59	121	205
6: <i>Proportionality: Modeling the Future</i>	18	34	17	33	65	127	194
7: <i>Algebra: Mirror, Mirror on the Universe</i>	22	44	22	43	56	109	196

(n) denotes number of responses.

(N) denotes total population of respondents.

### ***Quality of the Classroom Activities/Experiments***

Respondents were asked to respond to four statements about the program-related classroom activities/experiments (table 13). The quality of the classroom activities/experiments was rated highest for ease of use ( $\bar{x} = 4.49$ ). The classroom activities/experiments also were rated high for complementing the lesson for each show ( $\bar{x} = 4.46/\bar{x} = 4.39$ ) and being developmentally appropriate for the grade level ( $\bar{x} = 4.17/\bar{x} = 4.22$ ). The lowest mean rating was given to the statement concerning the ease of incorporating the classroom activity into the lesson plan ( $\bar{x} = 3.22/\bar{x} = 3.97$ ).

Table 13. Quality of NASA CONNECT Classroom Activities

Question:	Mean	Median	Standard deviation	Minimum	Maximum	Count (n)
The classroom activity (experiment) was easily incorporated into my lesson plan.	3.22	4	0.89	1	5	134
The classroom activity (experiment) complemented the lesson for each show.	4.46	5	0.70	1	5	124
The classroom activity (experiment) was developmentally appropriate for the grade level.	4.17	4	0.87	1	5	131
The classroom activities (experiments) were easy for me to use.	4.49	4	0.70	1	5	129

(n) denotes number of responses.

## Topic 7: NASA CONNECT Web-Based Activity

### Use of the Web-Based Activities

Respondents were asked if they used the web-based activity included with the NASA CONNECT series (table 14). The percentage of “yes” responses varied from 13 percent for program 6 (*Proportionality: Modeling the Future*) to 2 percent for program 4 (*Geometry of Exploration: Eyes Over Mars*). The percentage of “no” responses varied from a high of 32 percent for program 4 to a low of 23 percent for program 6. Overall, the percentage of respondents indicating that they “may use the program in the future” ranged from 66 percent for program 4 (*Geometry of Exploration: Eyes Over Mars*) to 61 percent for program 1.

Table 14. Use of Web-Based Activity

Question: Did you use the web-based activity for the following programs?	Yes		No		May in the future		Count
Program:	Percent	(n)	Percent	(n)	Percent	(n)	(N)
1: <i>The Measurement of All Things: Tools of the Aeronautics Trade</i>	9	19	30	62	61	129	210
2: <i>The Measurement of All Things: Atmospheric Detectives</i>	9	18	27	56	64	132	206
3: <i>Geometry of Exploration: Water Below the Surface of Mars</i>	12	27	25	55	62	136	218
4: <i>Geometry of Exploration: Eyes Over Mars</i>	2	4	32	63	66	132	199
5: <i>Proportionality: X-Plane Generation</i>	7	14	30	60	63	128	202
6: <i>Proportionality: Modeling the Future</i>	13	28	23	50	63	135	213
7: <i>Algebra: Mirror, Mirror on the Universe</i>	10	21	27	58	63	134	213

(n) denotes number of responses.

(N) denotes total population of respondents.

Respondents were also asked to indicate how many times they used the web-based activities (fig. 3). The mean frequency of use for the web-based activities was 5.63, with zero being the least amount of times the activities were used and 30 being the greatest number of times the activities were used.

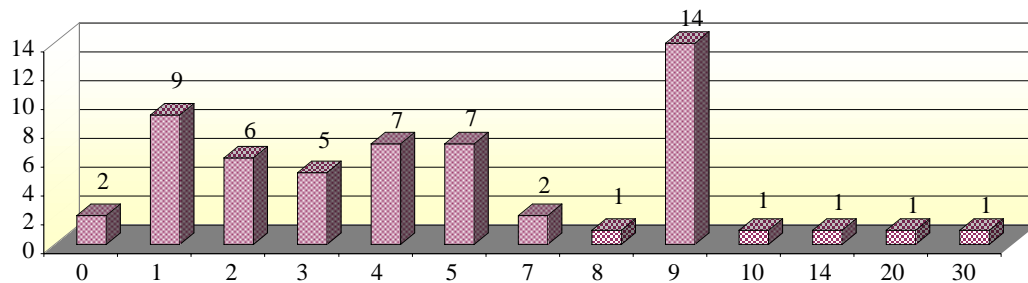


Figure 3. Q55: Use of web-based activity (n = 57).

### ***Grades Using the NASA CONNECT Web-Based Activities***

Respondents who used the 1999–2000 NASA CONNECT program were asked to report which grade levels used the web-based activities (fig. 4). The largest percentage of students viewing the 1999–2000 NASA CONNECT series were eighth graders (22 percent), seventh graders (16 percent), and sixth graders (16 percent). The least common grade levels to view the 1999–2000 NASA CONNECT programs were grades three (2 percent) and twelve (5 percent).

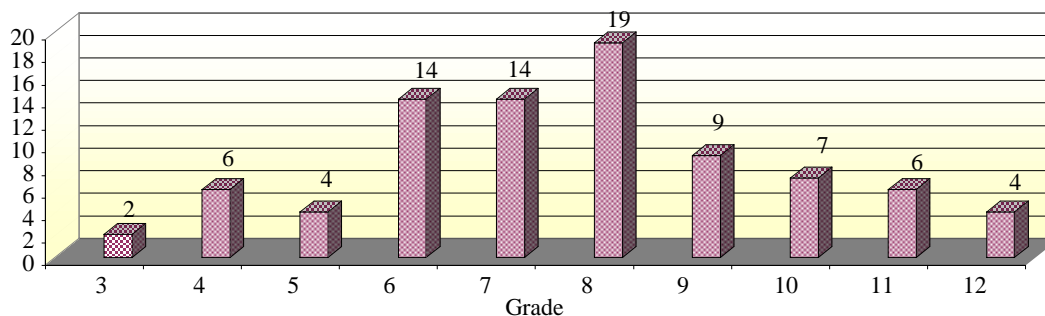


Figure 4. Q59: Grade levels that used web-based activity (n = 85).

### ***Quality of the Web-Based Activities***

The respondents were asked to react to twelve statements about the NASA CONNECT programs' web-based activities (table 15). The statements that the web-based activities enhanced the integration of mathematics, science, and technology ( $\bar{x} = 4.63$ ) and that more online activities should be available on the NASA CONNECT web site ( $\bar{x} = 4.64/\bar{x} = 4.72$ ) received the highest mean ratings from the respondents. They reported that the content of the web-based activities enhanced the integration of mathematics, science, and technology ( $\bar{x} = 4.37/\bar{x} = 4.32$ ) and raised student awareness of careers that require mathematics, science, and technological knowledge ( $\bar{x} = 4.34/\bar{x} = 4.33$ ). The respondents also indicated that the web-based activities would likely be revisited and reused ( $\bar{x} = 4.36$ ). A lower mean rating was given to the statement that the content of the web-based activities was appropriate for students ( $\bar{x} = 4.03/\bar{x} = 3.92$ ). The persons returning the survey rated the ease of integrating the content of the activities into the curriculum ( $\bar{x} = 4.09/\bar{x} = 3.98$ ) and the ability of students to complete the web-based activities in a reasonable amount of time ( $\bar{x} = 3.86$ ) at the lowest mean ratings in this section.

Table 15. Quality of NASA CONNECT Web-Based Activities

Question:	Mean	Median	Standard deviation	Minimum	Maximum	Count (n)
The content of the web-based activities was easily integrated into the curriculum.	4.09	4	1.0	1	5	64
The content of the web-based activities enhanced the integration of mathematics, science, and technology.	4.37	5	0.79	2	5	62
The web-based activities raised student awareness of careers that require mathematics, science, and technological knowledge.	4.34	5	0.81	2	5	58
Students were able to complete the web-based activities in a reasonable amount of time.	3.86	4	1.18	1	5	51
The web-based activities accommodated various learning styles.	4.14	4	0.93	2	5	57
The content for the web-based activities was appropriate for my students.	4.04	4	0.94	2	5	57
The graphics for the web-based activities were appropriate for my students.	4.16	4	0.88	2	5	55
The web-based activities enhanced the integration of mathematics, science, and technology.	4.64	5	0.69	3	5	56
The web-based activities had a good balance of text and graphics.	4.32	4.5	0.79	2	5	56
The web-based activities allowed my students to work at their own pace.	4.13	4	0.86	2	5	52
The web-based activities will likely be revisited/reused.	4.36	5	0.95	1	5	58
More online activities should be available on the NASA CONNECT web site.	4.64	5	0.76	1	5	81

(n) denotes number of responses.

Respondents were also asked whether their students used Norbert's Lab. Of those responding (n = 111), 77 percent indicated that they did not use Norbert's Lab, while 23 percent reported using this aspect of the web-based activity.

## Topic 8: NASA CONNECT Web Site

### *Quality of the NASA CONNECT Web Site*

Those surveyed were asked to respond to eight statements about the NASA CONNECT web site (table 16). They gave the highest mean ratings to the statement that the NASA CONNECT web site is visually appealing ( $\bar{x} = 4.58/\bar{x} = 4.50$ ) and the ability of the web site to be viewed clearly on the monitor ( $\bar{x} = 4.58/\bar{x} = 4.51$ ). They also gave a high rating to the design of the web site, which made the printouts of individual pages legible ( $\bar{x} = 4.50/\bar{x} = 4.45$ ), the balance between text and graphics on the web site ( $\bar{x} = 4.49/\bar{x} = 4.38$ ), and the ease of navigation ( $\bar{x} = 4.43/\bar{x} = 4.34$ ). Respondents gave the lowest rating to the speed of downloading the web site ( $\bar{x} = 4.09/\bar{x} = 3.87$ ).

Table 16. Quality of NASA CONNECT Web Site

Question:	Mean	Median	Standard deviation	Minimum	Maximum	Count (n)
The NASA CONNECT web site is visually appealing.	4.58	5	0.62	2	5	166
There is a good balance between text and graphics on the web site.	4.49	5	0.65	2	5	164
The web site is easily navigated.	4.43	5	0.77	1	5	164
When viewed on my monitor, the web site is clearly legible.	4.58	5	0.66	1	5	163
The web site is designed so that my printouts of individual pages are legible.	4.50	5	0.82	1	5	151
The NASA CONNECT web site downloads quickly.	4.09	4	0.95	1	5	148
The page lengths are appropriate.	4.42	5	0.68	3	5	153
The links to other sites/pages are current.	4.41	5	0.76	1	5	148

(n) denotes number of responses.

## Topic 9: Classroom Environment

### *Instructional Technology Equipment*

Respondents were asked about the availability/location of specific kinds of technology in their classrooms, schools, and homes (fig. 5). A television, a VCR, a video camera, a laser disc player, video editing equipment, a computer, and a DVD were the items specified. The respondents were asked to mark all that applied.



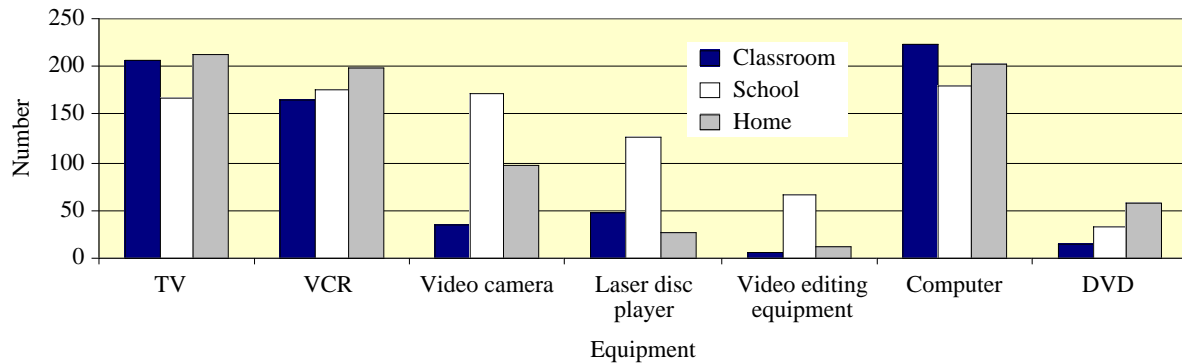


Figure 5. Availability of specific instructional technology.

**Television** – Two hundred and six (206/236) respondents reported that they had a television in their classrooms, 167 (167/184) reported televisions in their schools, and 212 (212/220) reported televisions in their homes. Two hundred forty-nine (249/267) individuals responded to this question.

**VCR** – One hundred sixty-six (166/215) respondents reported a VCR in their classrooms, 175 (175/195) reported VCRs in their schools, and 199 (199/219) reported VCRs in their homes. Two hundred sixty (260/289) individuals responded to this question.

**Video camera** – Thirty-five (35/40) respondents said that they had a video camera in their classrooms, while 172 (172/208) had video cameras in their schools, and 98 (98/121) had video cameras in their homes. Two hundred and eleven (211/251) individuals responded to this question.

**Laser disc player** – Forty-seven (47/70) respondents reported laser disc players in their classrooms. One hundred twenty-seven (127/138) of these had laser disc players in their schools, and twenty-seven (27/25) had laser disc players in their homes. One hundred sixty-seven (167/189) individuals responded to this question.

**Video editing equipment** – Only six (6/9) respondents answered that they had video editing equipment in their classrooms; 66 (66/74) had video editing equipment in their schools, and 13 (13/10) had the equipment in their homes. Eighty-one (81/80) individuals responded to this question.

**Computer** – Two hundred twenty-four (224/249) respondents reported having a computer in their classrooms, 180 (180/208) reported computers in their schools, and 203 (203/208) reported computers in their homes. Two hundred fifty-eight (258/290) individuals responded to this question.

### *Computer Accessories*

Respondents were asked about the availability/location of specific computer accessories (fig. 6). The accessories were a CD-ROM, a LAN, a district-wide network, and an internet connection. The respondents were asked to mark all choices that applied.

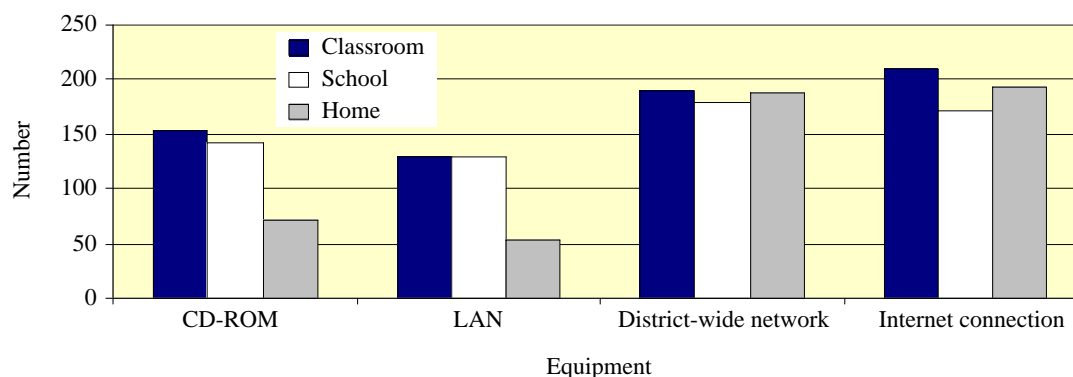


Figure 6. Availability of specific computer accessories.

**CD-ROM** – One hundred fifty-three (153/224) of the respondents had CD-ROMs in their classrooms, and 143 (143/193) had CD-ROMs in their schools. Seventy two (72/196) respondents had CD-ROMs in their homes. Two hundred and eight (208/285) individuals responded to this question.

**LAN** – One hundred twenty-nine (129/127) of the respondents reported LANs in their classrooms, and 129 (129/147) reported LANs in their schools. Fifty-three (53/57) had LANs in their homes. One hundred seventy-four (174/199) individuals responded to this question.

**District-wide network** – One hundred eighty-nine (189/124) of the respondents reported that their classrooms had district-wide networks, while 178 (178/129) reported district-wide networks in their schools. One hundred and eighty-eight (188/29) respondents had district-wide networks in their homes. Two hundred and fifty-one (251/178) individuals responded to this question.

**Internet connection** – Two hundred and ten (210/174) of the persons surveyed had internet connections in their classrooms, and 171 (171/185) had internet connections in their schools. One hundred ninety-three (193/168) persons reported internet connections in their homes. Two hundred and fifty-three (253/271) individuals responded to this question.

### ***School Computer Operating System***

Survey respondents were asked to enter a number for how many computers were in their classrooms. The mean number of computers in each classroom was ( $\bar{x} = 3.12/\bar{x} = 2.97$ ). Survey respondents were then asked to identify the type of computer operating system used in their schools (fig. 7). Thirty-four percent (32%/34%) of those surveyed ( $n = 240$ ) reported that their schools used a Macintosh system, while 66 percent (80%/66%) reported that their schools used a Windows system. This percentage is above 100 percent because respondents could indicate the presence of both Macintosh and Windows systems in their classrooms.

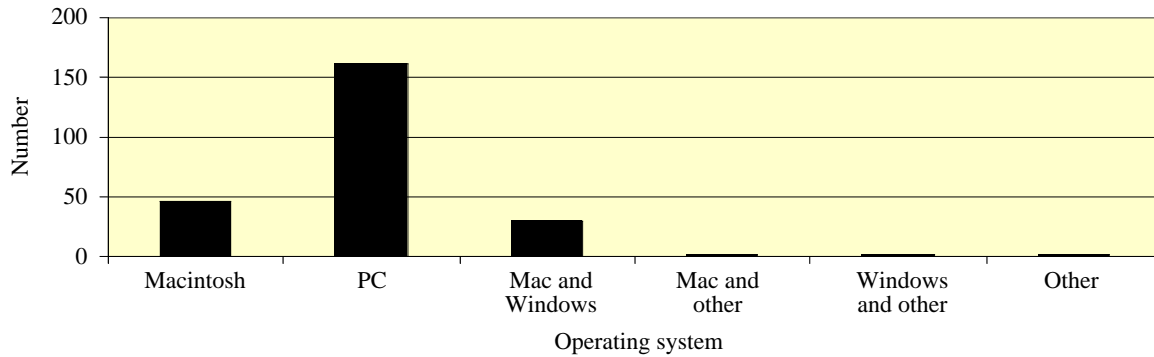


Figure 7. Computer operating systems used in schools.

### *Student Use of School Computers*

Respondents ( $n = 239$ ) were asked how often a typical student in their schools used a computer during a given month (fig. 8). Thirty-five percent (35%/25%) reported that a student used a computer from one to five (1–5) times in a given month, 23 percent (23%/28%) reported that a student used a computer from 6 to 10 (6–10) times, and 18 percent (18%/23%) reported that a student used a computer from 11 to 20 (11–20) times within a given month. Fifteen percent (15%/15%) of those surveyed said that a student used a computer in their schools 21 to 40 (21–40) times in a given month, while 9 percent (9%/8%) reported a use of 41 or more times within a month.

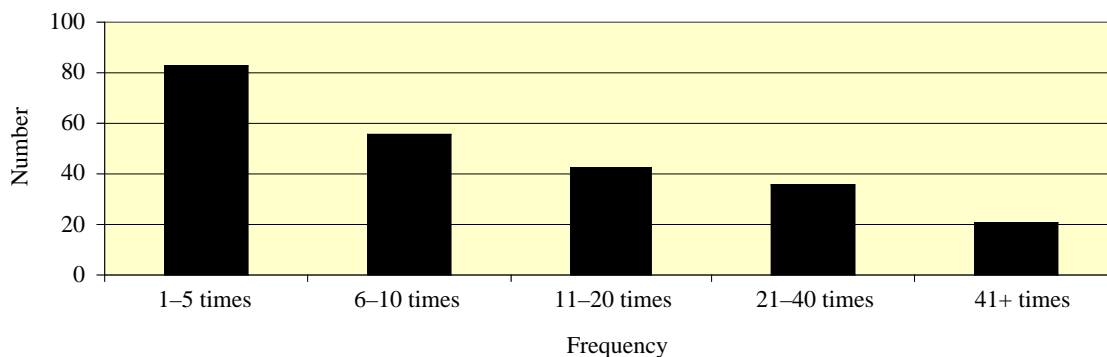


Figure 8. Student use of school computers.

### *Student-to-Computer Ratio*

Survey respondents ( $n = 249$ ) were asked how the students in their school operated computers in the classroom (fig. 9). Forty-nine percent (49%/42%) responded that students operated computers on a ratio of one student per computer. Forty percent (40%/39%) reported that the students worked with computers in pairs (i.e., two students per computer). Seventeen percent (17%/19%) indicated that the students operated the computers in groups (i.e., three or more students per computer). Fifteen percent (15%) reported that the students worked on the computers as a class. Respondents could mark all boxes that applied.

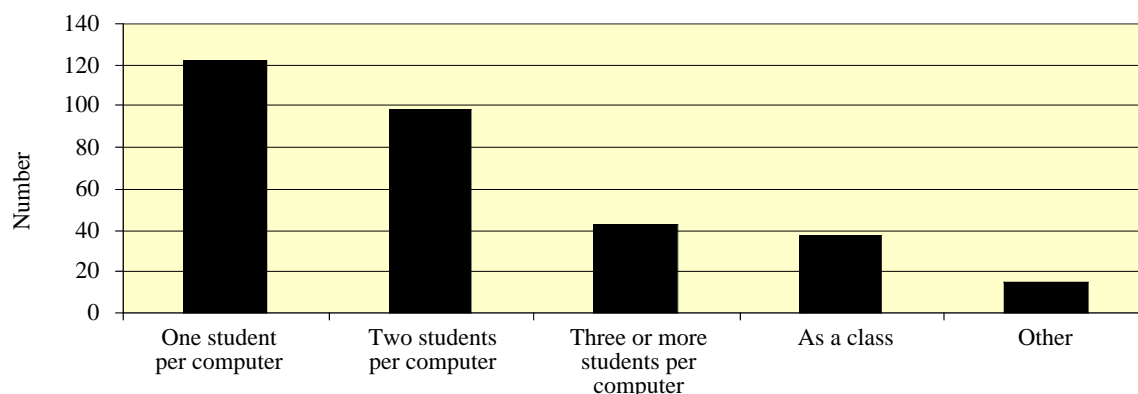


Figure 9. Student-to-computer ratio.

### ***Classroom Connection to the Internet***

Respondents were asked to indicate how the computers in their classrooms are connected to the Internet (fig. 10). Six percent (6%/16%) reported that a 28.8 modem was used. Nine percent (9%/12%) indicated that a 56-K modem was used, and 8 percent (8%/16%) reported the use of a cable modem. Thirty-nine percent (39%/21%) said that a T-1 line was used. Thirteen percent (13%/27%) said that their classrooms did not have a connection, and 8 percent (35%/8%) said that they did not know about their classroom connections.

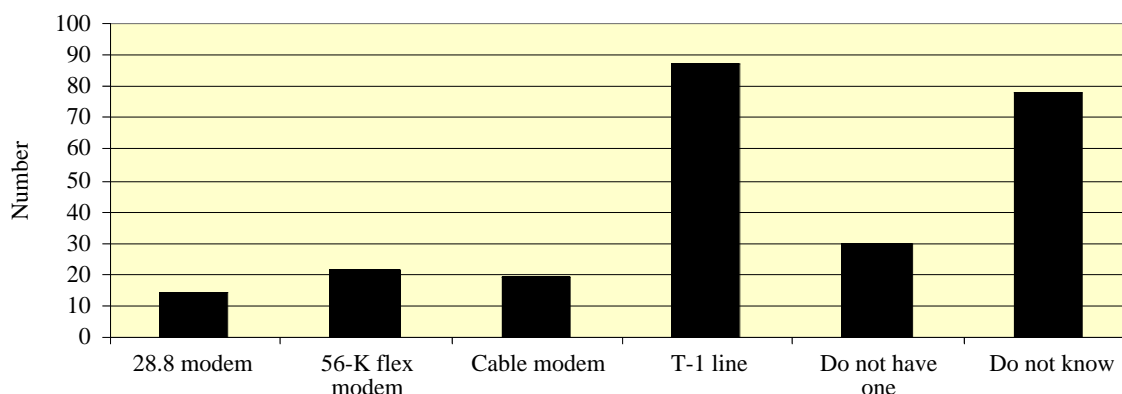


Figure 10. Type of classroom internet connection.

### ***Purposes of Student Computer Use***

Survey respondents were given eleven purposes for student computer use and were asked to mark all that applied (table 17). Two hundred and two (202/227) selected *finding out about ideas and information*. One hundred ninety-eight (198) selected *higher order thinking skills*, and 179 (179/189) selected *improving computer skills*. One hundred sixty-nine (169/187) selected *learning to work independently*. One hundred sixty-six (166/136) selected *analyzing information*. One hundred fifty-nine (159/168) checked *learning to work collaboratively*. One hundred forty-two (142/180) checked *remediation of skills not learned well*. One hundred and thirty-nine (139) respondents selected the objectives of *expressing ideas in writing* (139/191) and *mastering skills just taught* (139/180). One hundred thirty-six (136/114) selected *presenting information to an audience*. One hundred and one (101/121) marked *communicating electronically with others*, and 30 selected *other objective*.

Table 17. Objectives for Student Computer Use

Objective	Count (n)
Higher order thinking skills	198
Mastering skills just taught	139
Remediation of skills not learned well	142
Expressing ideas in writing	139
Communicating electronically with others	101
Finding out about ideas and information	202
Analyzing ideas and information	166
Presenting information to an audience	136
Improving computer skills	179
Learning to work collaboratively	159
Learning to work independently	169
Other	30

(n) denotes number of responses.

### ***Educators Professional Use of Computers***

Educators were asked whether the school-based technology training that had been provided by their school had improved their computer technology skills (table 18). The mean response on the 5-point Likert scale was  $\bar{x} = 3.87$ . The respondents were also asked to identify the ways in which they used computers for lesson preparation or other professional activities and to indicate the frequency of each use. They were to mark all uses that applied.

Table 18. School-Based Training

Question:	Mean	Median	Standard deviation	Minimum	Maximum	Count (n)
The school-based technology training provided by my school division improved by computer technology skills.	3.58	4	1.41	1	5	203

(n) denotes number of responses.

### ***To Record or Calculate Student Grades***

Twenty percent (20%/31%) of the persons responding (n = 254) indicated that they did not use the computer for recording or calculating student grades. Nine percent (9%/17%) used the computer for recording or calculating student grades occasionally, 20 percent (20%/25%) used the computer for this purpose weekly, and 51 percent (51%/27%) used the computer for recording/calculating grades more often than weekly.

### ***To Make Handouts for Students***

Two percent (2%/31%) of the respondents (n = 256) reported that they did not use the computer to produce handouts for students, while 19 percent (19%/17%) did so occasionally. Twenty-eight percent (28%/25%) used the computer weekly, and 50 percent (50%/27%) used the computer more often than that to make handouts for students.

### ***To Correspond With Parents***

Of the persons surveyed (n = 252), 25 percent (25%/22%) did not use the computer to correspond with parents, while 42 percent (42%/42%) used the computer for this purpose occasionally. Sixteen percent (16%/23%) reported that they used the computer for corresponding with parents weekly, and 17 percent (17%/12%) reported that they used the computer for this purpose more often than weekly.

### ***To Write Lesson Plans or Related Notes***

Fourteen percent (14%/19%) of the respondents (n = 257) indicated that they did not use the computer to write lesson plans or related notes, while 23 percent (23%/31%) did so occasionally. Twenty-eight percent (28%/27%) used the computer for writing lesson plans and related notes weekly, and 35 percent (35%/22%) used the computer for this purpose more often than on a weekly basis.

### ***To Get Information or Pictures From the Internet for Lesson Use***

No use of the computer to get information or pictures from the Internet for use in lessons was reported by 8 percent (8%/13%) of the respondents (n = 257). Thirty-four percent (34%/45%) reported occasional use of the computer to get information and pictures from the Internet for lessons, while 23 percent (23%/21%) used the computer for this purpose on a weekly basis, and 35 percent (35%/21%) more frequently than that.

### ***To Use Camcorders, Digital Cameras, or Scanners for Class Preparation***

Forty-six percent (46%/47%) of the respondents (n = 285) reported that they did not use camcorders, digital cameras, or scanners in preparing for their classes. Thirty-six percent (36%/41%) used camcorders, digital cameras, or scanners for class preparation occasionally; 12 percent (12%) used them weekly; and 7 percent (7%) used the items more frequently than weekly.

### ***To Exchange Computer Files With Other Teachers***

Forty-three percent (43%/52%) of the persons responding (n = 255) reported no use of computers to exchange computer files with other teachers, and 39 percent (39%/38%) did so occasionally. Ten percent (10%/4%) used computers to exchange files with other teachers weekly, and 8 percent (8%/6%) used computers for this purpose more frequently than weekly.

### ***To Post Information on the World Wide Web***

Sixty-six percent (66%/70%) of the respondents (n = 254) indicated that they did not use the computer to post student work, suggestions for resources, or ideas and opinions on the World Wide Web. Twenty-four percent (24%/21%) used the computer for posting this kind of information occasionally, 5 percent (5%/6%) reported weekly use for this purpose, and 5 percent (5%/3%) reported use more than weekly.

## **Interpreting the Findings**

Having presented the survey data in the previous section, the next step involves interpreting the data in terms of assessing the quality of NASA CONNECT. Excluding the survey demographics, interpretations of the finds are presented by topic.

## **Topic 1: Instructional Technology and Teaching**

Considering the data from both program years, survey respondents continue to take the position that instructional technology enables teachers to be more creative, to teach more effectively, and to effectively accommodate different learning styles. Furthermore, respondents continue to believe in the power of instructional technology to motivate students to learn, to increase learning and comprehension, and that instructional technology is effective with virtually all types of students. Overall, we interpret these findings to mean that survey respondents believe in the power of instructional technology to enhance and enrich the learning process and experience. That belief coincides with the relevant literature and research and would seem to support the large-scale effort on the part of educators to improve school access to educational technology. However, respondents' belief in the efficacy of instructional technology is tempered somewhat by their actual "classroom" use of instructional technology and their perceptions regarding the overall quality of instructional programming.

## **Topic 2: Instructional Programming and Technology in the Classroom**

### ***Instructional Programming***

Although respondents appear to agree with the statements that schools have greater access to instructional technology programs and that the majority of these programs are of good quality, the extent to which they agree with these statements is down from the previous year. Furthermore, respondents indicated that these programs are not easily broken into "teachable" units and that the majority of these programs are not appropriate for their students. Considering the data from both program years, the extent to which survey respondents agree with the statements concerning "teachability" and "quality" of instructional programming is less this year than for the previous program year. Overall, we interpret these findings to mean that survey respondents have become less optimistic regarding the suitability of instructional programming to meet the instructional needs of their students.

### ***Instructional Technology***

Although the extent to which they agree is down this year from the previous year, survey respondents reported that administrators generally support and encourage the use of instructional technology in the classroom. Given that the increasing amount of accountability be applied to administrators to increase test scores, it is not at all surprising that survey respondents would report that the level of support and encouragement for the use of instructional technology in the classroom has decreased. Up slightly from the previous year, survey respondents indicated that classrooms are growing increasingly "rich" in instructional technology. Given the increasing amount of money being spent each year to purchase instructional technology (i.e., computers), it is not surprising that respondents would report that classrooms are growing increasingly rich with respect to instructional technology. The "scores" of survey respondents regarding the statement that teachers are generally positive about introducing/using instructional technology in the classroom are about the same as those for the previous year. We offer three reasons why this year's scores did not increase over the previous year's scores. The first and second reasons are supported by the survey data. As with the previous year, respondents continue to report that "no or limited access to computers" coupled with "lack of time in the school schedule for technology projects" remain the single largest factors or barriers to integrating instructional technology into their instructional program. The third reason, supported by the relevant research, stems from the increasing amount of pressure being brought to bear on administrators, teachers, and students to pass the state wide "competency" tests being imposed nationwide. Conventional wisdom indicates that administrators and educators alike are reluctant to allow or to introduce any instructional resource into the classroom that does not clearly support the state standards.

### **Topic 3: Overall NASA CONNECT Program Assessment**

The overall assessment of NASA CONNECT is based on the extent to which survey respondents reported that the 10 objectives established for the series were met. Considering the data from both program years, the stated objectives for the NASA CONNECT series are being met. With the exception of the objectives that focus on the grade level/developmental appropriateness of content and the ease of integration, this year's scores were higher than the scores from the previous program year. Two areas that appear to be problematic, grade level appropriateness and ease of integration, are singled out for attention. The established grade level(s) for the NASA CONNECT series is grades 6–8. Given the low score (i.e., rating) received for this objective and that this year's score is lower than that of the previous year, it might be wise to investigate the “grade level distribution and use” of the NASA CONNECT series. Likewise, given that ease of integration received the lowest score for both program years, it might also be wise for program officials to devote both time and resources to further investigating this finding.

### **Topic 4: The NASA CONNECT Instructional Broadcast**

NASA CONNECT is an instructional resource that consists of a (1) television broadcast, (2) lesson guide, and (3) web-based activity. NASA CONNECT is designed to enhance and enrich the instruction of and to facilitate the integration of mathematics, science, and technology for students in grades 6–8. Consequently, the use and perceived quality of the three components (e.g., television broadcast) by survey respondents would appear to be two criteria for evaluating the NASA CONNECT series. When considering both the percentage of respondents who indicated that they either use the television broadcast or that they may use the broadcast in the future, the responses indicate that “on average” about 75 percent of the educators registered for the series use the broadcast. Further, respondents are about evenly divided in terms of “how they use” the broadcasts in the NASA CONNECT series. More than 50 percent of the respondents use the broadcasts in the series to either (1) introduce a topic, objective, or skill or (2) to reinforce a topic, objective, or skill. Similarly, the percentage of respondents who indicated that they taped the broadcasts for later use, as opposed to using the broadcasts when they aired, ranged from a low of 59 percent to a high of 78 percent. Furthermore, although the broadcasts in the 1999–2000 NASA CONNECT series were used in grades 4 through 12, they were used most often in grades 6–8. Lastly, when considering a list of 15 “quality” indicators, survey respondents gave the instructional broadcasts high marks for artistic, technical, and instructional quality. Overall, we interpret these findings to mean that the broadcasts in the NASA CONNECT series (1) are being used by educators; (2) are being used by educators as an instructional resource; (3) are being used predominantly in the intended grades; and (4) are of high artistic, technical, and instructional quality.

### **Topic 5: NASA CONNECT Lesson Guides**

The lesson guide plus the broadcast and the web-based activity are three components that make up a NASA CONNECT program. The lesson guide contains the applicable standards, the objectives, resources, lesson extensions, and the hands-on activity. Considering the lesson guides in the 1999–2000 NASA CONNECT series, the use rate by survey respondents ranged from a low of 22 percent to a high of 50 percent. Of those respondents who indicated that they had not used the lesson guides, the responses to the statement, “may use them in the future,” ranged from a low of 40 percent to a high of 58 percent. Overall, the combined “yes” and “may use them in the future” responses ranged from a low of 78 percent to a high of 90 percent. We interpret these findings to indicate that respondents do use the lesson guides.

Using a 5-point scale (with 5.0 being the highest), respondents were asked to “rate” the quality of the lesson guides on each of seven (7) “quality” criteria. The “overall” mean quality rating for the guide was



4.39. The quality factors receiving the highest values were the “background portion of the guide” (4.54) and the “guides are a valuable instructional aid” (4.52). The quality factor, “easy to download from the Internet,” received the lowest rating (4.13). We interpret these findings to indicate that in addition to the guides being used, the overall quality of the guides is high. Finally, given that the guides are available from the NASA CONNECT web site as PDF files, any difficulties encountered downloading the guides from the Internet are best associated with equipment and network considerations and have less to do with the overall quality of the guides.

## **Topic 6: NASA CONNECT Classroom Activities/Experiments**

Each NASA CONNECT program includes a hands-on activity or experiment that is designed to reinforce and apply the mathematics, science, and technology concepts included in the instructional program and in the classroom. Considering the hands-on activities in the 1999–2000 NASA CONNECT series, the use rate by survey respondents ranged from a low of 18 percent to a high of 42 percent. Of those respondents who indicated that they had not used the classroom activities, the responses to the statement, “may use them in the future,” ranged from a low of 46 percent to a high of 65 percent. Overall, the combined “yes” and “may use them in the future” responses ranged from a low of 78 percent to a high of 88 percent. We interpret these findings to indicate that respondents do use the classroom activities.

Using a 5-point scale (with 5.0 being the highest), respondents were asked to rate the quality of the classroom activities on each of four (4) quality criteria. The overall mean quality rating for the classroom activities was 4.09. The quality factors receiving the highest values were the classroom activities are easy to use (4.49) and the activity complemented the lesson (4.46). The quality factor, activity was easily incorporated into my lesson plan, received the lowest rating (3.22). We interpret these findings to indicate that in addition to the classroom (i.e., hands-on) activities being used, the overall quality of the activities is high. Finally, the low rating given to the classroom activities being easily incorporated into my lesson may be attributable to the following factors: (1) the time it takes to conduct the classroom (i.e., hands-on) activity exceeds available classroom time; (2) teachers being uncomfortable using hands-on activities; and (3) emphasis being placed on using classroom time to cover only those mathematics, science, and technology concepts included in the various state proficiency tests.

## **Topic 7: NASA CONNECT Web-Based Activities**

Each NASA CONNECT program includes a web-based activity that is designed (1) to reinforce and apply the mathematics, science, and technology concepts included in the instructional program and in the classroom and (2) to provide teachers an opportunity to introduce technology into the classroom. Considering the web-based activities in the 1999–2000 NASA CONNECT series, the use rate by survey respondents ranged from a low of 2 percent to a high of 13 percent. Of those respondents who indicated that they had not used the web-based activities, the responses to the statement, “may use them in the future,” ranged from a low of 61 percent to a high of 66 percent. Overall, the combined “yes” and “may use them in the future” responses ranged from a low of 68 percent to a high of 76 percent. Respondents who used them were asked to report the “number of times” they used the web-based activities. The mean frequency was 5.63. Respondents were also asked to report the grade levels of the students using the web-based activities. The largest percentage of students using the web-based activities was eighth graders, followed by seventh graders and sixth graders. Even though the web-based activities appear to be grade level appropriate, we interpret these findings to indicate that respondents are simply not using the web-based activities and speculate that the reasons for not using the web-based activities may be the same given by respondents for not using technology in the classroom; namely, “no or limited access to

computers” coupled with “lack of time in the school schedule for technology projects.” Clearly, the use/non-use of the web-based activities by NASA CONNECT registrants requires further investigation.

Using a 5-point scale (with 5.0 being the highest), respondents were asked to rate the quality of the web-based activities on each of twelve (12) quality criteria. The overall mean quality rating for the web-based activities was 4.26. The quality factors receiving the highest values were the activities that enhanced the integration of mathematics, science, and technology (4.64) and the content of the web-based activities that enhanced the integration of mathematics, science, and technology (4.37). The quality factor, “students were able to complete the web-based activity in a reasonable amount of time,” received the lowest rating (3.86). Respondents were also asked to indicate if more web-based activities should be available on the NASA CONNECT web site. More than 90 percent of the respondents selected “yes.” We interpret these findings to indicate that even though the web-based activities are not being used, the overall quality of the web-based activities is high and that more online activities should be added to the NASA CONNECT web site.

## **Topic 8: NASA CONNECT Web Site**

Using a 5-point scale (with 5.0 being the highest), respondents were asked to “rate” the quality of the NASA CONNECT web site on each of eight (8) “quality” criteria. The “overall” mean quality rating for the NASA CONNECT web site was 4.44. Furthermore, the web site ratings for the 1999–2000 NASA CONNECT program year are noticeably higher than the web site rating received for the 1998–1999 NASA CONNECT program year. We interpret these findings to indicate that the changes made during the 1999–2000 NASA CONNECT program year increased the overall quality of the NASA CONNECT web site.

## **Topic 9: Classroom Environment**

### ***Instructional Technology Equipment***

Respondents were asked several questions regarding the availability of specific instructional technology equipment (e.g., VCR, DVD player) in their classroom, school, and home. The answers to these questions could be used to “paint a picture” of the existing technology landscape, to help explain the “use/non-use” of existing technology-based products, and to help plan the introduction of additional technology-based products as part of the NASA CONNECT series. Most respondents indicated the presence of a TV, VCR, and a computer in their classroom, school, and home. The more expensive equipment (e.g., video editing system and digital camera) were found in schools and to a far lesser degree in the classroom and home, while the newer technology (e.g., DVD player) was found in the home and to a lesser degree in the school and the classroom. What these results do not tell us, however, is what access teachers have to this equipment; how much, if any, training educators have had using this equipment; how many computers educators may have in their classrooms; and how much time they have to use a computer or any other technology equipment.

### ***Computer Accessories***

Respondents were also asked about the availability of specific computer equipment/accessories in their classroom, school, and home. Again, the answers to these questions could be used to “paint a picture” of the existing technology landscape, to help explain the “use/non-use” of existing technology-based products, and to help plan the introduction of additional technology-based products as part of the NASA CONNECT series. Perhaps what is most significant is the number of respondents having internet access

in their homes, schools, and classrooms. About 54 percent indicated they had internet access in their homes. About 55 percent indicated they had internet access in their school, while 48 percent indicated they had internet access in their classroom. While these percentages are interesting, they need to be placed in context to be useful. For example, knowing how these percentages compare to national figures or knowing how these percentages compare to previous year's percentages would yield useful information.

### ***Student Use of Computers***

We attempted to determine the number of computers in respondents' schools and the type of operating system(s) used with these computers. The average number of computers per school was slightly more than 3, which is up slightly from the previous year. Most respondents reported that their systems were PB-based with Mac-based and a mixture of the two being a distant third. We also wanted to know how often a typical student used a classroom computer in a month. About 35 percent indicated that a student used a computer 1 to 5 times a month, 23 percent reported a use rate of 6 to 10 times a month, and 18 percent reported a use rate of 11 to 20 times a month. What is significant about these percentages is that each is higher than the percentage reported for the previous program year. Respondents were asked to report the ratio of computers *in their classroom to student use*. More than 50 percent of the respondents reported that students operated computers in their classroom at a ratio equal to or greater than 2 students per computer. It is significant that the ratio of students operating a computer with at least one other student is down from the percentage reported for the previous program year. Finally, we wanted to determine the purpose for which teachers had students use the computer. Of the 11 purposes given, the top three were (1) finding out about ideas and information, followed by higher order thinking skills, and improving computer skills followed closely by learning to work independently and learning to work collaboratively. These are interesting facts. However, for such facts to be meaningful, they need to be placed in the context of national figures or in the context of the previous year's responses.

### ***Educator Use of Computers***

The training received by teachers and educators is essential to the success of technology in the classroom (Thomas, 2000). Today's teachers are asked to integrate technology and incorporation media into their classes to enhance teaching, while improving student learning. Money pours into schools to supply labs with state-of-the-art equipment and software. However, the best intentions in the world are impossible to carry out if teachers are not trained sufficiently, are not comfortable enough with the software and equipment, and do not really believe in the benefits of current technology (Ariza, Knee, and Ridge, 2000). Acknowledging this reality, respondents were asked several questions about training and computer use to rate the helpfulness of the school-based technology training provided by their school/school system. Most reported that the training was moderately helpful. We did not ask respondents, however, if their school or school division offered school-based technology training. We'll attempt to collect these data in a previous program year survey. Respondents reported that they *most often* used a computer for such administrative duties as recording/calculating grades and for such educational purposes as searching the Internet for lesson use, preparing lesson plans, and making handouts for students. Respondents reported that they *least often* used computers to operate technology-based equipment, to exchange files with other educators, and to post student work assignments on the World Wide Web. These findings are virtually the same as those reported for the 1998–1999 NASA CONNECT program year.

## Concluding Remarks

A self-reported survey was sent to individuals randomly selected from the database of NASA CONNECT registrants. Based on the responses, the following facts have been established for the 1999–2000 NASA CONNECT program year. NASA CONNECT is an instructional resource that is designed to integrate mathematics, science, and technology in grades 6–8. According to survey respondents, educators consider NASA CONNECT a beneficial instructional resource and use it in a manner befitting such a resource. For example, (1) the instructional broadcast is most often taped for use at a later date rather than being used live; (2) some parts of a NASA CONNECT program are used more frequently than other parts; and (3) NASA CONNECT is used most often to reinforce topics, objectives, or skills. Collectively, these data support the continued production of NASA CONNECT. Furthermore, it appears that the changes/improvements that were implemented as a result of the 1998–1999 evaluation were well received by NASA CONNECT registrants. However, in the next program year evaluation, apparently additional effort should be directed to determining the low use of the NASA CONNECT web-based activities. The 1999–2000 NASA CONNECT program data support the conclusion that the activities are educationally sound. If such is the case, what factor or factors explain why the NASA CONNECT web-based activities are not used more? What steps can be taken to increase their use? Lastly, some of the instructional technology questions still appear to be confusing. Despite attempts to clarify these questions, it seems that respondents are still having difficulty answering these questions. Given the ability of these questions to paint a picture of the existing technology landscape, to help explain the “use/non-use” of existing technology-based products, and to help plan the introduction of additional technology-based products as part of the NASA CONNECT series, accurate and reliable responses become an imperative.

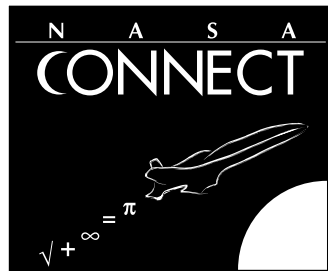
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## Appendix A

### 1999–2000 NASA CONNECT Evaluation Booklet

#### EVALUATION BOOKLET



**An award-winning, standards-based,  
integrated mathematics, science,  
and technology distance learning  
program for grades 4–8 produced by  
the NASA Langley Research Center,  
Hampton, VA.**

Evaluating the Effectiveness  
of the  
**1999–2000 NASA CONNECT  
Program Series**

#### INSTRUCTIONAL TECHNOLOGY AND TEACHING

Please indicate (circle the number) the extent to which you disagree or agree with the following statements about instructional technology and classroom teaching.

##### Instructional technology . . .

1. enables teachers to teach more effectively.  

Disagree					Agree		No Opinion
1	2	3	4	5			9
2. enables teachers to accommodate different learning styles.  

Disagree					Agree		No Opinion
1	2	3	4	5			9
3. enables teachers to be more creative.  

Disagree					Agree		No Opinion
1	2	3	4	5			9
4. increases student learning and comprehension.  

Disagree					Agree		No Opinion
1	2	3	4	5			9
5. increases student willingness to discuss content/exchange ideas.  

Disagree					Agree		No Opinion
1	2	3	4	5			9
6. increases student motivation and enthusiasm for learning.  

Disagree					Agree		No Opinion
1	2	3	4	5			9
7. is effective with virtually all types of students.  

Disagree					Agree		No Opinion
1	2	3	4	5			9

## INSTRUCTIONAL PROGRAMMING AND TECHNOLOGY IN THE CLASSROOM

Please indicate the extent to which you disagree or agree with the following statements about instructional programming and technology.

8. Increasingly, schools have greater access to instructional programs.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
9. The majority of these programs are of good quality.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
10. The majority of these programs are **not** appropriate (i.e., too advanced or too basic) for my students.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
11. The majority of these programs are **not** easily broken into "teachable" units.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
12. Administrators support and encourage teachers to use instructional technology in the classroom.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
13. Classrooms are growing increasingly rich in instructional technology.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
14. Teachers are generally positive about introducing/using instructional technology in the classroom.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |

## INSTRUCTIONAL PROGRAMMING AND TECHNOLOGY IN THE CLASSROOM

15. Which of the following factors are barriers to integrating technology into your instructional program? (Check all that apply.)

- ☐ Not enough or limited access to computers.
- ☐ Not enough computer software.
- ☐ Purchased software has not been installed.
- ☐ Lack of time in school schedule for technology projects.
- ☐ Lack of technical support for technology projects.
- ☐ Lack of teacher training opportunities for technology projects.
- ☐ Lack of knowledge concerning methods of integrating technology into the curriculum.

## VIDEO PROGRAMS

## NASA CONNECT

The following questions pertain to the seven programs in the 1999-2000 NASA CONNECT series.

16. Did you use the following programs? (Please check "✓".)

Program	Yes	No	No, but I may in the future
1. Measurement...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Measurement...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Geometry...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Geometry...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Proportion/Ratio...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Proportion/Ratio...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Algebra...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. If you selected "yes," please (✓) indicate how these programs were used.

	Program						
	1	2	3	4	5	6	7
a. To introduce a curriculum topic, objective, or skill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. To reinforce a curriculum topic, objective, or skill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. As a special interest topic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. For some other purpose (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- 18a. If you selected "yes," for question 16, please indicate how these programs were viewed. (Please check "✓".)

	Program						
	1	2	3	4	5	6	7
a. Live	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Taped	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Both	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Not viewed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- 18b. How did you receive the program? (Please check "✓".)

	Yes	No
1. PBS	<input type="checkbox"/>	<input type="checkbox"/>
2. Downlinked it	<input type="checkbox"/>	<input type="checkbox"/>
3. Media Specialist taped it	<input type="checkbox"/>	<input type="checkbox"/>
4. I or someone else taped it	<input type="checkbox"/>	<input type="checkbox"/>
5. NASA sent me the tapes	<input type="checkbox"/>	<input type="checkbox"/>
6. Other (please specify)		

## VIDEO PROGRAMS

## NASA CONNECT

- 18c. Did you experience difficulty obtaining any of the programs in the 1999-2000 NASA CONNECT series? (Please check "✓".)

☐ Yes ☐ No

19. If you selected "yes," for question 16, please indicate the grade level(s) that viewed the programs. (Please circle.)

3 4 5 6 7 8 9 10 11 12

Please indicate the extent to which you disagree or agree with the following statements concerning the seven programs in the 1999-2000 NASA CONNECT series.

20. The programs were of good artistic quality.

Disagree	Agree	No Opinion
1 2 3 4 5	5	9

21. The programs were of good technical quality.

Disagree	Agree	No Opinion
1 2 3 4 5	5	9

22. The programs enabled me to accommodate different learning styles.

Disagree	Agree	No Opinion
1 2 3 4 5	5	9

23. The programs increased student willingness to discuss/exchange ideas.

Disagree	Agree	No Opinion
1 2 3 4 5	5	9

24. The programs increased student enthusiasm for learning.

Disagree	Agree	No Opinion
1 2 3 4 5	5	9

25. The programs were effective with virtually all types of students.

Disagree	Agree	No Opinion
1 2 3 4 5	5	9

26. The programs were a valuable instructional aid.

Disagree	Agree	No Opinion
1 2 3 4 5	5	9



## VIDEO PROGRAMS

## NASA CONNECT

27. The programs were developmentally appropriate for the grade level.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
28. The programs were easily incorporated into the curriculum.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
29. The programs enhanced the integration of mathematics, science, and technology.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
30. The programs raised student awareness of careers that require mathematics, science, and technology.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
31. The programs demonstrated the application of mathematics, science, and technology of the job.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
32. The programs presented mathematics, science, and technology as disciplines requiring creativity, critical thinking, and problem-solving skills.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
33. The programs illustrated the integration of workplace mathematics, science, and technology.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
34. The programs presented women and minorities performing challenging engineering and scientific tasks.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
35. The programs were a positive link between the classroom activity and the web-based activity.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |

## LESSON GUIDES

## NASA CONNECT

Please indicate the extent to which you disagree or agree with the following statements concerning the printed lesson guides used for the seven programs in the 1999-2000 NASA CONNECT series.

36. Did you use the lesson guides for the following programs? (Please check "✓.")
- | Program                                    | Yes                      | No                       | No, but I may in the future |
|--|--------------------------|--------------------------|-----------------------------|
| 1. Measurement...                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>    |
| 2. Measurement...                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>    |
| 3. Geometry...                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>    |
| 4. Geometry...                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>    |
| 5. Proportion/Ratio...                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>    |
| 6. Proportion/Ratio...                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>    |
| 7. Algebra...                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>    |
| 8. Guides not received or received in time | <input type="checkbox"/> |                          |                             |
37. If no, please explain and then proceed to question #46:
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
38. The directions/instructions in the lesson guides were easily understood.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
39. The layout of the lesson guides presented the information clearly.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
40. The lesson guides were a valuable instructional aid.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |
41. The print and electronic resources in the lesson guide were a valuable instructional aid.
- |           |  |       |            |
|-----------|--|-------|------------|
| Disagree  |  | Agree | No Opinion |
| 1 2 3 4 5 |  | 9     |            |

## LESSON GUIDES

## NASA CONNECT

42. The cue cards provided a positive link between the video and the lesson guide.

Disagree		Agree	No Opinion
1	2	3	4
		5	9

43. The teacher "background" portion of the lesson guide was a valuable instructional aid.

Disagree		Agree	No Opinion
1	2	3	4
		5	9

44. The lesson guide was easy to download from the Internet.

Disagree		Agree	Did Not Download
1	2	3	4
		5	9

45. Please add any other comments you have concerning the lesson guides:

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## CLASSROOM ACTIVITY

## NASA CONNECT

Please indicate the extent to which you disagree or agree with the following statements concerning the seven classroom activities used in the 2000-2001 NASA CONNECT series.

46. Did you use the classroom activity for the following programs? (Please check "✓.")

Program	Yes	No	No, but I may in the future
1. Measurement...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Measurement...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Geometry...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Geometry...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Proportion/Ratio...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Proportion/Ratio...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Algebra...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

47. If no, please explain and then proceed to question 53.

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48. The classroom activity (experiment) was easily incorporated into my lesson plan.

Disagree		Agree	No Opinion
1	2	3	4
		5	9

49. The classroom activity (experiment) complemented the lesson for each show.

Disagree		Agree	No Opinion
1	2	3	4
		5	9

50. The classroom activity (experiment) was developmentally appropriate for the grade level.

Disagree		Agree	No Opinion
1	2	3	4
		5	9

51. The classroom activities (experiments) were easy for me to use.

Disagree		Agree	No Opinion
1	2	3	4
		5	9

## CLASSROOM ACTIVITY NASA CONNECT

52. Please add any other comments you have concerning the classroom activity:

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## WEB-BASED ACTIVITY NASA CONNECT

Please indicate the extent to which you disagree or agree with the following statements concerning the online activities posted on the 1999-2000 NASA CONNECT series web site. (*e.g., FoilSim, Mars Web Quest*)

53. Did you use the web-based activity for the following programs? (Please check "✓.")

Program	Yes	No	No, but I may in the future
1. FoilSim...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Atmospheric...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Mars Web Quest...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. TBD...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Kids Corner...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Airplane Design...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Hubble Deep...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

54. If no, please explain and then proceed to question 71.

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55. If yes, approximately how many times?

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56. The content of the web-based activities was easily integrated into the curriculum.

Disagree				Agree	No Opinion
1	2	3	4	5	9

57. The content of the web-based activities enhanced the integration of mathematics, science, and technology.

Disagree				Agree	No Opinion
1	2	3	4	5	9

58. The web-based activities raised student awareness of careers that require mathematics, science, and technological knowledge.

Disagree				Agree	No Opinion
1	2	3	4	5	9

## WEB-BASED ACTIVITY NASA CONNECT

59. If you selected "yes," for question 53, please indicate the grade level(s) that used the web-based activity. (Please circle.)

3 4 5 6 7 8 9 10 11 12

60. Students were able to complete the web-based activities in a reasonable amount of time.

Disagree Agree No Opinion  
1 2 3 4 5 9

61. The web-based activities accommodated various learning styles.

Disagree Agree No Opinion  
1 2 3 4 5 9

62. The content for the web-based activities was appropriate for my students.

Disagree Agree No Opinion  
1 2 3 4 5 9

63. The graphics for the web-based activities were appropriate for my students.

Disagree Agree No Opinion  
1 2 3 4 5 9

64. The web-based activities enhanced the integration of mathematics, science, and technology

Disagree Agree No Opinion  
1 2 3 4 5 9

65. The web-based activities had a good balance of text and graphics.

Disagree Agree No Opinion  
1 2 3 4 5 9

66. The web-based activities allowed my students to work at their own pace.

Disagree Agree No Opinion  
1 2 3 4 5 9

67. The web-based activities will likely be revisited/reused.

Disagree Agree No Opinion  
1 2 3 4 5 9

## WEB-BASED ACTIVITY NASA CONNECT

68. More online activities should be available on the NASA CONNECT web site. (Please circle.)

Disagree Agree No Opinion  
1 2 3 4 5 9

69. Did you or your students use Norbert's Lab?

Yes No

70. Please add any other comments you have concerning the web-based activity:

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**NASA CONNECT WEB SITE**

The following questions pertain to the web site for the 1999-2000 NASA CONNECT series. Please indicate the extent to which you disagree or agree with the following statements.

- |     |   |   |   |       |   |            |
|-----|---|---|---|-------|---|------------|
| 71. | The NASA CONNECT web site is visually appealing.                            |   |   |       |   |            |
|     | Disagree  |   |   | Agree |   | No Opinion |
|     | 1   | 2 | 3 | 4     | 5 | 9          |
| 72. | There is a good balance between text and graphics on the web site.          |   |   |       |   |            |
|     | Disagree  |   |   | Agree |   | No Opinion |
|     | 1   | 2 | 3 | 4     | 5 | 9          |
| 73. | The web site is easily navigated.   |   |   |       |   |            |
|     | Disagree  |   |   | Agree |   | No Opinion |
|     | 1   | 2 | 3 | 4     | 5 | 9          |
| 74. | When viewed on my monitor, the web site is clearly legible.                 |   |   |       |   |            |
|     | Disagree  |   |   | Agree |   | No Opinion |
|     | 1   | 2 | 3 | 4     | 5 | 9          |
| 75. | The web site is designed so that printouts of individual pages are legible. |   |   |       |   |            |
|     | Disagree  |   |   | Agree |   | No Opinion |
|     | 1   | 2 | 3 | 4     | 5 | 9          |
| 76. | Pages within the web site download quickly.                                 |   |   |       |   |            |
|     | Disagree  |   |   | Agree |   | No Opinion |
|     | 1   | 2 | 3 | 4     | 5 | 9          |
| 77. | The page lengths is/are appropriate.  |   |   |       |   |            |
|     | Disagree  |   |   | Agree |   | No Opinion |
|     | 1   | 2 | 3 | 4     | 5 | 9          |
| 78. | The links to other sites/pages are current.                                 |   |   |       |   |            |
|     | Disagree  |   |   | Agree |   | No Opinion |
|     | 1   | 2 | 3 | 4     | 5 | 9          |

## OVERALL ASSESSMENT

Please indicate the extent to which you disagree or agree with the following statements concerning the seven programs in the 1999-2000 NASA CONNECT series.

- |     |  |   |   |   |       |            |  |  |   |
|-----|--|---|---|---|-------|------------|--|--|---|
| 79. | The programs met their stated objectives.  |   |   |   |       |            |  |  |   |
|     | Disagree   |   |   |   | Agree | No Opinion |  |  |   |
|     | 1  | 2 | 3 | 4 | 5     |            |  |  | 9 |
| 80. | The program content was developmentally appropriate for the grade level.                               |   |   |   |       |            |  |  |   |
|     | Disagree   |   |   |   | Agree | No Opinion |  |  |   |
|     | 1  | 2 | 3 | 4 | 5     |            |  |  | 9 |
| 81. | The program content was aligned with the national mathematics, science, and technology standards.      |   |   |   |       |            |  |  |   |
|     | Disagree   |   |   |   | Agree | No Opinion |  |  |   |
|     | 1  | 2 | 3 | 4 | 5     |            |  |  | 9 |
| 82. | The program content was easily integrated into the curriculum.   |   |   |   |       |            |  |  |   |
|     | Disagree   |   |   |   | Agree | No Opinion |  |  |   |
|     | 1  | 2 | 3 | 4 | 5     |            |  |  | 9 |
| 83. | The program content enhanced the teaching of mathematics, science, and technology.                     |   |   |   |       |            |  |  |   |
|     | Disagree   |   |   |   | Agree | No Opinion |  |  |   |
|     | 1  | 2 | 3 | 4 | 5     |            |  |  | 9 |
| 84. | The programs raised student awareness about careers that require mathematics, science, and technology. |   |   |   |       |            |  |  |   |
|     | Disagree   |   |   |   | Agree | No Opinion |  |  |   |
|     | 1  | 2 | 3 | 4 | 5     |            |  |  | 9 |
| 85. | The programs presented the application of mathematics, science, and technology on the job.             |   |   |   |       |            |  |  |   |
|     | Disagree   |   |   |   | Agree | No Opinion |  |  |   |
|     | 1  | 2 | 3 | 4 | 5     |            |  |  | 9 |
| 86. | The programs presented workplace science and technology as a collaborative process.                    |   |   |   |       |            |  |  |   |
|     | Disagree   |   |   |   | Agree | No Opinion |  |  |   |
|     | 1  | 2 | 3 | 4 | 5     |            |  |  | 9 |

## OVERALL ASSESSMENT

## NASA CONNECT

87. The programs presented mathematics, science, and technology as a process requiring creativity, critical thinking, and problem-solving skills.

Disagree                      Agree                      No Opinion  
1    2    3    4    5                      9

88. The programs presented women and minorities performing challenging engineering and science tasks.

Disagree                      Agree                      No Opinion  
1    2    3    4    5                      9

## CLASSROOM ENVIRONMENT

The following questions pertain to the classroom environment in which you teach.

89. Do you have the following equipment in your \_\_\_\_\_? (Please check all that apply.)

	classroom	school	home
Television	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VCR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Video camera	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laser disc player	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Video editing equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DVD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

90. Does your computer have the following in your \_\_\_\_\_? (Please check all that apply.)

	classroom	school	home
CD-ROM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local area network	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
District-wide network	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internet connection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

91. How many computers are in your classroom? (Please enter a number below.)

\_\_\_\_ (if "0", proceed to question #72)

92. The operating system used on your school computers is

☐ Macintosh    ☐ Windows    ☐ Other \_\_\_\_\_

93. In a given month, about how many times does a typical student in your class use a computer in school? (Please check.)

☐ 1-5 times    ☐ 6-10 times    ☐ 11-20 times  
☐ 21-40 times    ☐ 41 + times

94. Generally speaking, how do the students operate the computers in your classroom? (Please check.)

☐ one student per computer  
☐ in pairs (2)  
☐ in groups of 3-5  
☐ as a class  
☐ other \_\_\_\_\_

95. The school-based technology training provided by my school division improved my computer technology skills.

Disagree	Agree	No Opinion	No school-based training provided
1    2    3    4    5	7	9	

### CLASSROOM ENVIRONMENT

96. My classroom connection to the Internet uses a \_\_\_\_\_. (Please check.)
- ☐ 28.8 modem
  - ☐ 56-K flex modem
  - ☐ cable mode
  - ☐ T-1 line
  - ☐ do not have one
  - ☐ do not know
97. Which of the following are among the objectives you have for student computer use? (Please check all that apply.)
- ☐ Higher order thinking skills
  - ☐ Mastering skills just taught
  - ☐ Remediation of skills not learned well
  - ☐ Expressing ideas in writing
  - ☐ Communicating electronically with others
  - ☐ Finding out about ideas and information
  - ☐ Analyzing information
  - ☐ Presenting information to an audience
  - ☐ Improving computer skills
  - ☐ Learning to work collaboratively
  - ☐ Learning to work independently
  - ☐ Other (describe) \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
98. In which of these ways do you use computers to prepare lessons or in other professional activities? (Please check.)
- a. to record or calculate student grades
- ☐ Do not use
  - ☐ Occasionally
  - ☐ Weekly
  - ☐ More often
- b. to make handouts for students
- ☐ Do not use
  - ☐ Occasionally
  - ☐ Weekly
  - ☐ More often

### CLASSROOM ENVIRONMENT

- c. to correspond with parents
- ☐ Do not use
  - ☐ Occasionally
  - ☐ Weekly
  - ☐ More often
- d. to write lesson plans or related notes
- ☐ Do not use
  - ☐ Occasionally
  - ☐ Weekly
  - ☐ More often
- e. to get information or pictures from the Internet for use in lessons
- ☐ Do not use
  - ☐ Occasionally
  - ☐ Weekly
  - ☐ More often
- f. to use camcorders, digital cameras, or scanners to prepare for class
- ☐ Do not use
  - ☐ Occasionally
  - ☐ Weekly
  - ☐ More often
- g. to exchange computer files with other teachers
- ☐ Do not use
  - ☐ Occasionally
  - ☐ Weekly
  - ☐ More often
- h. to post student work, suggestions for resources, or ideas and opinions on the World Wide Web
- ☐ Do not use
  - ☐ Occasionally
  - ☐ Weekly
  - ☐ More often

**DEMOGRAPHICS****NASA CONNECT**

These questions will be used to determine whether survey respondents with different backgrounds and characteristics have different opinions regarding instructional technology and NASA CONNECT™. (Please check the appropriate response.)

99. Gender?  
☐ Female   ☐ Male
100. Present professional duties? (Please check all that apply.)  
☐ Teacher  
☐ Home Schooler  
☐ Technology Program Coordinator  
☐ Principal  
☐ Math Coordinator  
☐ Science Coordinator  
☐ Librarian/Media Specialist  
☐ Community College Instructor  
☐ College/University Instructor  
☐ Distance Learning Coordinator  
☐ Curriculum Coordinator  
☐ Other (please specify) \_\_\_\_\_
101. School type? (Please check only one.)  
☐ College/University  
☐ Community College  
☐ Home School  
☐ Native American School  
☐ Private/Parochial  
☐ Public
102. School location? (Please check only one.)  
☐ Rural  
☐ Suburban  
☐ Urban
103. Highest degree?  
☐ High School Diploma/Equivalency  
☐ Associates (2-year)  
☐ Baccalaureate (BA/BS)  
☐ Masters/Masters Equivalency  
☐ Education Specialist  
☐ Doctorate

**DEMOGRAPHICS****NASA CONNECT**

104. Ethnicity? (Please check only one.)  
☐ African American  
☐ Asian  
☐ Caucasian  
☐ Hispanic  
☐ Native American  
☐ Pacific Islander  
☐ Other (please specify) \_\_\_\_\_
105. How many years have you been a professional educator? (Please enter number below.)  
\_\_\_\_\_
106. Your age? (Please enter number below.)  
\_\_\_\_\_
107. Do you own a personal computer?  
☐ Yes   ☐ No
108. Are you a member of a professional (national) education organization (e.g., ASDC, NMSA, NCTM, NSTA)?  
☐ Yes   ☐ No
109. Number of years you have used NASA CONNECT (Please enter a number below.)  
\_\_\_\_\_

**Thank you for your assistance.**

In appreciation for having assisted us, we are pleased to offer you a copy of the 1999–2000 NASA CONNECT assessment report. To receive your free copy of the assessment report, please check the box to the right. ☐

With your assistance, the NASA Langley Research Center is providing the educational community with quality integrated mathematics, science, and technology instructional distance learning programming for grades 4–8.

**Please return to**  
NASA CONNECT  
Mail Stop 400  
NASA Langley Research Center  
Hampton, VA 23681-2199







National Aeronautics and  
Space Administration

**Langley Research Center**  
Hampton, VA 23681-0001



NASA CONNECT

## Appendix B

### Comments Returned With Blank Evaluation Booklets

ID Number	Comments
99-1438	I ordered this series in the hope that some teachers would be interested in using it, but none were.
99-1540	I was unable to participate. I am sorry.
99-1459	(partially answered survey) I answered some of the questions but was unable to record programs. Our media center could not do it for me.
99-1417	Did evaluation online
99-2241	Since I did not register for NASA CONNECT until February, my students and I did not participate this year. I teach a math course for talented 7th graders as well as 8th graders who need a second year of preparation for algebra, the curriculum for which I have designed myself. I think the CONNECT program will be an excellent supplement to my curriculum, and I look forward to reviewing the materials over the summer and having my students participate for the 2000-2001 school year. I hope you and your team will be able to offer telephone or e-mail support as I become familiar with the program. Thank you, and I look forward to working with you.
99-1241	I thought that NASA CONNECT was for high school level students but upon looking at it, I found it was more designed for middle school; therefore, I did not use it. Sorry!
99-1412	I'm sorry, but to be honest, we have not had a chance to use your program because our curriculum is so full.
99-1427	We were unable to complete the work as we lost our cable.
99-1550	Inappropriate - Content too difficult for my students
99-1768	I did not use these materials this year. I hope to have time over the summer to look over the materials with my math teachers to see where we can work it into our curriculum.
99-1698	I did register for CONNECT. However, I never received any additional information. I hope to work with you in the future. Thank you.
99-1975	I did not sign up for NASA CONNECT. Thank you.
99-2053	Inappropriate. Received materials but did not use.
99-1085	My teaching duties were changed just before the start of school this year. I think another change may be in the works for next. I hope to use this service if possible. Thanks!
	Congratulations! Hope to use your programs more next year. Some time constraints are beyond my control this year. That is why I didn't return your evaluation.
99-1617	Never got around to it.
99-1505	We ended up not using this program, so I can't comment. Thanks!
99-1066	I work with teachers around the state and have been getting NASA CONNECT to have available for teachers to sign out. Consequently, I don't have the facilities to actually work with the program. I did look through each program as it came to me. They all looked fantastic. I worked with NASA CONNECT when I was in the classroom 3 years ago, and I really thought it was great. The kids liked it, too. What do you want me to do about the booklet? I really won't be able to fill it out.
99-2201	My library staff successfully recorded only one of the presentations.
99-1651	Inappropriate. I did the demographic portion, though. MFR: I am a high school teacher who wanted to examine the program. As it turned out, I was unable to apply it in school.
99-1623	I will be using these materials with 6th-8th grade gifted students at Baylor University's YUP program June 19-30th, so I can't evaluate at this time.
99-2186	Have not used yet. Looking forward to next school year.
99-1625	Inappropriate. I could not record these programs because I do not have access to the NASA Channel! Is there any way I can get a copy of the programs? ID 99-5820
99-2401	Inappropriate. We are a resource for other teachers.
99-1885	Inappropriate (we have not used the program this year).
99-1230	In our By County School District, I am the ITV resource teacher. One of my tasks is to program our ITV Channel from 7:00 am - 3:00 pm Monday - Friday. I am not a classroom teacher with students each day; therefore, I did not complete the survey. I did make each of our 34 (36 in August 2000) schools aware that the NASA Connect series was being broadcast and that lesson plans and activities were available. In addition to the live feed, the program was taped and replayed during the month. I plan to carry the 2000-2001 season as well. Thanks.
99-1504	Inappropriate - I could not find when the shows were available in my area.
99-1257	Inappropriate - During the 1999-2000 Season we were just getting our satellites in working order and getting information out to teachers. We will be downloading these programs next year and sending copies to teachers who request them.
99-2129	Never got to use this - entered too late in the year and our building had tech problems, which should be solved for next year. Please keep me on the mailing list for fall.
99-2281	I was very excited by NASA CONNECT; however, when I discovered NASA CONNECT, the first 5 lessons had passed and one of the remaining programs was during our spring break. I would like information in the future. Sorry.
99-2346	Inappropriate - Was not able to use in school this year! Hopefully will use next year.
99-2094	Inappropriate - I was unable to use NASA CONNECT since I had a couple of surgeries this winter. Sorry.
99-2476	Inappropriate. I teach High School.
99-1639	Never had a chance to incorporate it into my lessons. Thanks anyway. Maybe next year.
99-1123	I have not been able to use your materials. Thank you for sending them, but please remove me from your mailing list.
99-4905	(Phone Conversation) Felt evaluation was too long - typical government. Had problems with satellite coordinates on web site. Received materials late. Action taken by OEd: Sent all seven episodes and talked to him about improvements made for next year.
99-7113	Couldn't evaluate, signed up too late this year. Please send information about next year.
99-4896	Thought it was something else - cannot use the program.

## Appendix C

### Solicited Comments to Qualitative Questions

Question: Respondents were asked to check what objectives they had for student computer use in the classroom. If the respondent checked "other," she/he was asked to describe the "other objective." The following are the objectives generated from that request.

SERIAL no.	Question 97 (COMMENT)
99-2193	Provides opportunity to build marketable skills
99-1553	Visual depiction of mathematics formulas and development of 3D awareness
99-1689	Has been inoperable all year despite repair requests
99-1465	LEGO CAP Robo Lab Programming
99-1681	Use technology as the means to an end (class objective)
99-1589	Word Processing Power Point
99-1029	Electronic card catalog
99-2128	Research
99-1524	Putting together an information presentation that includes text, graphics, and sometimes sound
99-1908	Some robotics
99-1585	Data collection and analysis, as well as real-world applications
99-1148	Research communication with parents
99-1778	Evaluating validity of info found on the Web
99-1576	Organizing concepts
99-1326	Visualization of concepts (3d, 4d and beyond) tessellations/transformations, organizational skills and assessment via floppies
99-2162	Don't really have any objectives
99-1344	Gathering facts and information
99-1141	Use various modalities to learn
99-2318	Lesson plan creation
99-2218	Compose web pages, use video conferences, and view student works
99-2402	Projects collaborative efforts
99-1109	Seeing applications of technology at work
99-1687	Design
99-1621	Image processing
99-1874	Our world is expanding into technology, and our students will be growing up in our high tech world, so they need to learn now while their minds are young.
99-1018	Dendyrs research skills

Question: Please add any other comments you have concerning the web-based activity.

SERIAL no.	Question 70 (COMMENT)
99-1605	Most of the time the system is down in El Paso area.
99-1553	Keep up web work! Our school will establish an intranet in 2000-2001 so that we can download web sites for student use.
99-1911	Great job. I will definitely share with other teachers and other grades.
99-1826	I'm excited to be able to do these next year.
99-1111	I tried to use it often but technical problems prevented it.
99-1845	We love it. Need more because I do not have the time to search out web sites for each topic I teach. Sometimes the sites were down!
99-1473	We actually try to decrease our kids computer time <SOL>, so we want more hand-held learning opportunities.
99-2213	I have list of materials needed.
99-1739	Our computer online system only part time - Should be better this year!
99-1657	No time in the day.
99-2128	I really didn't comprehend how to use the Web-based activities, so I couldn't really teach my students. I need more internet training before I can do more.
99-2184	Great, but I would like to see more done for the upper high school level
99-1778	I hope my classroom will have web access next school year. If so, I will use these sites with my students.
99-2500	Please send information: web site address.
99-1922	I plan to use web-based activities in the future. I am more computer literate now. I plan to use the web-based activities during the next school year.
99-1509	Hard to get lab for whole class.
99-1691	I am sorry that I cannot be of more help to you in the survey. The materials from NASA that I've used in the past have always been top quality. I look forward to using them in the next school year.
99-1750	I could not comment because I didn't use it.
99-1495	Please keep the web-based activity on the web longer, as slower students needed to revisit and it could not be found.
99-1200	Planning on looking into more of this in the fall.
99-1575	I read about Norbert's lab.
99-1556	Students visited and enjoyed the lab on several occasions. Many students went to Norbert's lab independently on two classroom computers.
99-2162	I checked the web-based activity rather than my students. The only reasons the activities will not be reused is that it's just not practical because of facility limitations. I looked at Norbert's Lab.
99-2347	I wanted to use the web but just didn't have time. Maybe next year?
99-2218	Need help with this.
99-1091	LD students had hard time understanding.
99-2067	I need more information about the NASA CONNECT programs.
99-1277	I did not get to explore the activities as much as I wanted to-will attempt to do more in 2000-2001.
99-1827	I visited the sight; I had a great deal of difficulty surfing the site for things I wanted to view.
99-1776	Because of lack of time and lab availability, we didn't use the web site; however I did look it over. The activities look great. Wish we had the time to use them.
99-1687	Must include troubleshooting problems in the design. What if ...? does not work. "Do this on that's in the design.
99-1526	Web-based activities can be used within my time frame and are effective with my GT students since they are self-paced.
99-1641	Started to look thoroughly; didn't have enough computer lab time.

Question: If you used programs in the 1999-2000 NASA CONNECT series, please indicate how they were used. If programs were used in a manner not specified (see question 17 in "Assessment Report Charts and Graphs"), respondents were asked to specify how they were used. The following are the comments generated from that question.

SERIAL no.	Question 17 (COMMENT)
99-1985	Research
99-2272	Did not receive video programs
99-1052	I have not been able to use any of the programs with my first graders this year.
99-2362	I just signed on a month ago.
99-1159	To encourage interest in our science fair.
99-1385	Cablecast on district's channel for whole district's use
99-1487	Could not use because of local PBS broadcast time! 3:00 A.M.
99-1148	Space day
99-1778	Bonus work for gifted kids
99-2309	I previewed them for next year.
99-1886	Reviewed for standardized testing
99-1161	Teachers/public can view on public access TV.
99-1726	As part of the Mars millennium project and Earth and space programs
99-2162	I watched them at home with my son, whom my wife homeschools. At the high school where I teach, we switched to a block schedule, which has greatly reduced our instruction time. As a result, there is little time to work the videos into the curriculum.
99-2488	My goal is to use this to reinforce; I have a child that has an above average IQ and this program challenges him.
99-1091	Review/Cum. Assessment
99-1277	Introduces teacher to the material
99-2034	Enrichment to course of study
99-1785	Talented and gifted curriculum extension
99-1621	Used tie-in w/Egyptian Unit

Question: If you used programs in the 1999-2000 NASA CONNECT series, please indicate how they were received. If programs were received in a manner not specified (see question 18b in "Assessment Report Charts and Graphs"), respondents were asked to specify how they received them. The following are the comments generated from that question.

SERIAL no.	Question 18b (COMMENT)
99-1895	NASA Regional Center
99-1473	We are a homeschooling family. We do not have TV access to your programs, but you have generously sent them to us on video.
99-1517	Will tape from PBS
99-1077	Did not use because '98-'99 programs were too difficult!
99-1839	I was not able to receive programs.
99-1750	I didn't.
99-1377	I didn't get the whole program because it was far above my students.
99-1390	I did not get the tapes, just the curriculum.
99-1575	Tried to download from PBS
99-1937	I am having to order the tape through NASA internet site since taping from PBS was never possible.
99-1344	Did not
99-2218	Used software from a company
99-2291	Tech convention
99-2363	Mail lesson guide only
99-1266	I only have the paper lessons, no video.
99-1218	Have not received them yet. I will tape program and make it available to teachers for next school year.
99-1776	I don't have them yet.
99-2485	Have internet guides only.



Question: If you did not use the lesson guides for the 1999-2000 NASA CONNECT programs, please explain.

SERIAL no.	Question 37 (COMMENT)
99-1605	Some lesson guides not received in time
99-1985	Near closing conflicts with schedules
99-1689	Used programs for review/enrichment. Plan to use for instruction next year.
99-1333	Felt the math department should do those
99-1911	Due to state testing and unavailability of lab/technology, we were unable to use.
99-1668	I had already passed this section, but I will try to incorporate next year.
99-1659	No time to correlate with curriculum
99-1111	I did not use the lesson guides with the video. I used as additions to my lessons.
99-1592	Didn't use programs
99-1895	Have not used these programs
99-1904	My class assignment changed after I signed up for NASA CONNECT.
99-2426	Did not use the programs at all on items checked "no."
99-1013	I teach 5th grade and concepts were difficult for my students. I love the Why Files promo and will use it next year.
99-1517	Our classroom computer was not hooked up in time for the programs (district's fault). I kept all the lesson plans and plan to use them with tapes in the future.
19-1960	Didn't receive #1-3
99-1702	Just started program!
99-1569	Too advanced for my students: the ones I checked "no."
99-2287	Time prevented using materials to their fullest extent
99-1329	We did not receive our tapes of the program
99-1324	Tapes weren't used due to scheduling conflicts. Having them available now will result in better integration and scheduling.
99-2212	A time factor is the main reason program is not yet incorporated. Home demands, additional duties, and building remodeling have taken their toll.
99-2063	I did not follow through.
99-2217	Not received in time to use
99-1694	You need to develop more K-4 units.
99-1514	I could not obtain the videos; therefore, I could not use the videos.
99-1029	Have not used the actual programs
99-1657	Didn't use
99-1502	I read them but concluded they did not fit activity with curriculum. Next year I will try to use them.
99-1487	Never received my guides- unable to tape programs due to local PBS station
99-1908	I had already covered many of these areas with my seniors.
99-2408	I received them after we had already finished our space unit for this year.
99-2324	Due to TAAS practices and the on-going activities in our school, I wasn't able to use the lesson guides.
99-2500	New to program
99-1489	Over the student's heads
99-2303	Didn't receive them
99-1839	I was not able to access the programs. Are there tapes available?
99-2309	Our science texts cover measurement.
99-1693	Just did not have the time
99-1713	Used the background info only

Question: If you did not use the lesson guides for the 1999-2000 NASA CONNECT programs, please explain.

99-1520	I requested that all of the programs be downlinked by our communications department. They only taped the first. I did not recover any of the other tapes. There were a number of problems.
99-1717	Difficulty in receiving programs
99-1509	Adapted to 9th grade
99-1576	Only able to tape one show
99-1974	6th grade was too young and had not had enough math
99-2317	Algebra is too high a level for my students.
99-1750	I didn't have time to integrate the program into the curriculum, but I plan to next year.
99-2192	I never had time to really look at the material. Last week 5/30-6/1, I looked over the material and thought it was great. I will use it next year!
99-1326	I had no time to review and integrate the programs. I plan to review them this summer. What little I've seen looks very good.
99-1831	My students weren't ready. Their skill level wasn't appropriate.
99-1161	Requests did not arrive.
99-1495	Some were received late.
99-2269	We were not connected early enough for me to get started in time.
99-1200	I am an administrator. Need tapes to encourage teachers to use material.
99-2394	Received at wrong time of year
99-2348	Didn't get the guides
99-1575	I was not able to view most of the programs, and I did not receive guides.
99-2052	Due to lack of time, I was unable to incorporate most of lessons. Have read and marked lessons for next year's use.
99-1928	I showed the videos as an extra reward for my students. Gave them a day off after working hard on SOL's.
99-1278	Too advanced for my 6th graders
99-2114	I did not receive the shows. School system could not receive feeds.
99-1556	Class schedule changed for 2nd, 3rd, and 4th marking periods. I did not have a class during broadcast times. Next year I will use the videos at class times.
99-2159	I plan to use next school year, if possible.
99-1905	Did not have them.
99-1841	Above my grade level
99-1859	I will use study guides during summer and see how I can incorporate into math/science state standards.
99-2218	I was not aware of the guide.
99-1996	Didn't get the video programs, so the guides weren't very useful.
99-1295	Not able to integrate receiving piece by piece, but can use next year
99-2301	Didn't get them in time
99-1789	Too advanced
99-2102	Received too late in the year
99-1873	No time allowed. State 160's must be covered.
99-1078	Didn't use 5 and 6 yet.
99-2421	Would have liked to have used; however, I have no access to record the shows.
99-1130	I did not use the programs but intend to this year. I have viewed them and looked over the lesson guides.
99-1949	This year there wasn't enough time-used as a reinforcement.
99-1060	I adapted to my program

Question: If you did not use the lesson guides for the 1999-2000 NASA CONNECT programs, please explain.

99-1426	Teachers did not have units in lesson plans. Will use them next year.
99-1134	I was not the math/science teacher this year, but I will be next year.
99-2108	I reviewed only 2 of the lesson guides.
99-2019	I have not yet viewed all programs.
99-2178	I had video for 1-4 but no lesson guides. I had lesson guides for 5-7 but no video.
99-2407	I only signed up near the end of the school year and borrowed someone's program on measurement.
99-1662	n/a
99-2488	I will begin to homeschool on Sept 5, 2001. I have ages 9 and 10 (4th and 6th graders). We are interested in learning more about this program.
99-1830	Will need to adapt to student ability (too high for this year's class)
99-2090	Time
99-1357	I did not use them because I did not teach math this year. Also, programs went unused because my school does not have technology to support some tech formats.
99-1266	We have a brand new science curriculum this year. We are gradually bringing in new material as we adapt.
99-1091	Timing in year did not permit
99-2067	I didn't receive any of the guides.
99-2216	I received my guides after we had covered the material. Some that I did use came off the web site.
99-1277	As curriculum supervisor, I used it to introduce the materials to teachers in our district.
99-1469	I had to start reviewing for the SOL test for the state of Virginia.
99-2402	Didn't get them in time
99-1109	I could plan to use them in my lessons.
99-1305	I did not tape the programs; instead I used the lesson guides and modified them for use with my students. The school year is very busy, with long-term plans already made before I received all your info this summer. I will spend time getting to know programs.
99-1218	Things got off to a late start here. I didn't have time to "in-service" teachers on the NASA connect program in time for them to benefit from it.
99-1827	We had difficulties getting programs on tape. We showed tapes for student feedback rather than use lesson guides.
99-2010	I was just letting my students pilot the videos for their opinion.
99-1260	Did not fit curriculum at the appropriate time.
99-1432	I was not sure of show times because I received the guide too late.
99-1379	I found it difficult to squeeze it in with everything else I'm required to teach but want to use it in the future as a resource.
99-1643	I am not a high level math teacher.
99-1621	Materials were not as "ready-to-use" or appropriate for this year's students.
99-1558	I did not make the time to get them into my curriculum for the year.
99-1522	I had already covered the material for which I will use the guides. I will be using them this year.
99-1018	We were still only with the teachers who will be there- expect to see them this year

Question: Please add any other comments you have concerning the lesson guides:

SERIAL no.	Question 45 (COMMENT)
99-2193	Helps with overview of lesson and aids in planning
99-1668	It would be nice to have them all on CD or Disk
99-1826	Excellent resource - Very valuable. I look forward to next year's series.
99-1111	It would be easier and more effective to receive tapes directly from NASA. There is difficulty in getting them taped in time.
99-1845	Sometimes the site was down or changed.
99-1247	They were tremendous help, full of information and great ideas.
99-1473	My children are younger, 5-7, but highly gifted - more pictures - kid-friendly handouts, and quizzes with the guide would be helpful and increase interest.
99-1702	Please Send!
99-1569	Our school computers will not download.
99-1589	I appreciate your sending me 3 copies of all the lessons so I could give them to other teachers in my department. Thanks!
99-1329	Videos need to be sent in a more timely manner
99-1324	Very well done, most valuable in adding to the curriculum
99-1058	I have filed them all and hope to get the tapes and use them in the future.
99-1585	The wind tunnel we built did not perform very well. I tried to come up with a better way to determine the drag and couldn't.
99-1148	Thank you for mailing to school address!
99-1778	Had to get assistance from technology specialist
99-1693	Disagree on #44 only because the computer will not hold enough data
99-1326	I'm sorry there's so little to say. If you'd like, I could do this evaluation next year after I've used some of the material.
99-1907	NY science fair students really enjoyed- helped create some topics
99-1831	I sent the guides to teachers in a higher grade.
99-1495	Could not download all of them-had them sent
99-1575	It would have been nice to receive the guides.
99-1278	It's hard to make a guide appropriate for the wide range of grades 4-8. I found much of it too complicated for my students.
99-1556	The lesson guides are an excellent resource. I have shared them with colleagues.
99-1279	Not allowed to download anything onto school computers! ( go figure)
99-1957	I thought the video and lessons were very well done overall. I had more difficulty incorporating the concepts into my fourth grade curriculum.
99-1141	Sometimes video was not available. Lesson Guides should have been easier to use when video was not available.
99-2218	I needed more information about the teacher's guide in advance.
99-2033	We were in 47 trailers which had no internet connections. Next year we move to a new school, so we will be linked all year hopefully!
99-1130	The guide makes incorporating these tapes into the curriculum very easy.
99-1323	My district is far too slow in approving technology. They do not support it fully. I have not been approved to use NASA CONNECT at this time. I sneak it in when possible.
99-1926	Our school district requires much paperwork to use any video (I have 4 classes so it must be taped). I am hoping to get approval for next year as I work them into the curriculum.
99-2407	I look forward to using the materials as I move to 8th grade earth science.
99-1469	Sometimes the lesson guides assumed the students knew more than they actually did know.
99-1687	I used this program on Super Saturdays in my school. Science, math, and ESL were developed around the wind tunnel. This project became an interdisciplinary curriculum the students learn and apply while having fun.
99-1330	Excellent Material

Question: If you did not use the classroom activities for the 1999-2000 NASA CONNECT programs, please explain.

SERIAL no.	Question 47 (COMMENT)
99-1494	School not technologically set up yet
99-1689	See Question #37
99-1668	Same as #37
99-1397	Saw tape only - discussed items
99-1111	I plan to review tapes with lessons for next year.
99-1078	Need to match topics to the curriculum. This is my first year as a 6th grade teacher. I will do more next year.
99-1592	Just not used
99-2426	No for program items I did not use at all
99-1517	See Q. 37
19-1960	Didn't receive #1-3 in time
99-1702	New to program
99-2287	Lack of time prevented doing everything I wanted to do.
99-2311	No time to integrate into lesson
99-2212	Again, strictly a time factor
99-2063	Did not follow through
99-2217	Did not receive in time to use
99-1029	Did not actually use the programs this year
99-1657	Too tough for 6th grade
99-1502	Time constraints, curriculum alignment
99-2027	Time constraints in the curriculum
99-1908	I had already covered material with my seniors.
99-2184	Used my own
99-2408	We had already finished our space unit.
99-2324	Again, due to TAAS preparation, plus time constraint, I wasn't able to use the activities.
99-1778	Time was at a premium, so I used these programs mainly for enrichment and discussion.
99-2500	New to program
99-1489	Not enough time and help pulling program up
99-2303	Didn't receive them
99-1269	Not enough time! We were cramming for the SOLs. I now have the time to view everything (on tapes made)
99-2309	Our science texts only cover measurement.
99-1717	Trouble obtaining programs
99-2133	Did not fit at the best time for the curriculum
99-1509	Will use next year
99-1067	Ran out of time in space unit
99-2317	Not grade appropriate
99-1750	I plan to work up lesson plans for next year. I didn't have time to implement lessons this year.
99-1907	Only informal groups-no classroom activities
99-1831	My students weren't ready. Their skill level wasn't appropriate.

Question: If you did not use the classroom activities for the 1999-2000 NASA CONNECT programs, please explain.

99-2269	I was not connected to Internet until late in the school year and to cable for the TV two months before the end of school.
99-2394	Occurred at the wrong time of the year
99-1575	I didn't see all the programs. They did not come on the channel listed.
99-2052	Due to lack of time, I was unable to incorporate most of lessons. Have read and marked lessons for next year's use.
99-1928	I gave them a day off after working so hard on the SOLs. This program was a type of reward.
99-1278	Not relevant to our curriculum goals and standards.
99-2366	I was too busy preparing for the SOL testing and did not have class time for the activity.
99-2114	School district could not receive feeds.
99-1556	I wanted students to view the videotapes before attempting the activities. Students' schedules were not conducive to this.
99-2162	There is not enough instruction time available because our curriculum is so packed. Also, some activities were not as appropriate for high school students.
99-2159	Plan to use next school year
99-1344	As much as I wanted to see and do these activities, it was not possible. We had trouble getting programs taped and eventually gave up.
99-1905	Do not have
99-1141	Time to adjust
99-1841	Above grade level and not enough time
99-2318	Time or lack of time was a problem.
99-2218	Needed more information
99-1451	Not enough time to use
99-1996	Didn't receive the video programs, so the guides weren't very useful.
99-2033	We couldn't build the wind tunnel.
99-1295	See #37.
99-2291	Did not receive all of the materials, and the packets I received were not appropriate for elementary.
99-1873	No time. State 160s must be covered.
99-1078	Didn't use
99-2479	Did not receive
99-1949	This year there was not enough time, but I plan to next year.
99-1060	I adapt my own activities.
99-1426	Students were not at those levels.
99-1134	Same as before
99-2108	Did not review guides in time. Will use at 4H camp next summer.
99-2019	Not enough time
99-2178	Packets received shared with staff. Comments below reflect their feedback.
99-2488	We are interested in the program.
99-1830	Need to adapt to class

Question: If you did not use the classroom activities for the 1999-2000 NASA CONNECT programs, please explain.

99-1006	Did not have appropriate resources- incarcerated education program
99-2090	Time
99-1357	I will use them next year.
99-1266	We are getting new material and reviewing it for next year.
99-1091	Timing in year did not permit.
99-2067	I didn't receive any of the activities.
99-2216	Will use in the future. I received them late in the school year.
99-1469	I had to start intense review for the SOL test.
99-2034	Ran out of time
99-2402	Didn't get them in time
99-1218	I gave out the guides and activities, but since we did not have the tapes available, teachers didn't use them.
99-1827	Same as question 37
99-2010	Did not have class time
99-2485	Did not download until near the end of year
99-1621	Not enough time to put into a packed curriculum
99-1558	Did not take the time to fit them into my curriculum.
99-1014	Student math skills too low.
99-1522	See answer 37.
99-1018	Definitely will this year- home teacher is using

Question: Please add any other comments you have concerning the classroom activity.

SERIAL no.	Question 52 (COMMENT)
99-1553	This is an excellent program.
99-1911	Kids enjoyed this, a good interdisciplinary with math
99-1826	Worked extremely well with students
99-1111	The high school students would enjoy the tapes if older students were used. Work in field area is ok to work with, but when they see the young children, they often are not willing to pay attention.
99-2236	I signed on to the program late in the school year, so I have had limited exposure to the series. I look forward to using it extensively next year.
99-1247	The students are older at-risk students. They enjoyed the activities because for some they were completely tuned out when the information and/or similar activities were offered earlier in their school careers.
99-1589	Some materials that were to be used with the lesson were hard to get.
99-1525	We built the wind tunnel. It was successful, and the students enjoyed it and were exited. We're doing measurements now.
99-1324	Time constraints prevented optimum use. Future planning will integrate materials in the curriculum more effectively.
99-1524	Some of the measurement and ratio activities were below grade level skill (8th).
99-1585	Wind tunnel did not perform well
99-1778	We are piloting a new curriculum. I had little flexibility for including these programs this year. Next year, I plan to incorporate them.
99-1693	These activities are good. I will be able to integrate more of them next year.
99-2041	I enjoyed the elementary lessons of NASA CONNECT and am looking forward to next year's activities.
99-1922	Super!
99-1067	Had trouble setting up wind tunnel. Not enough for all students to keep occupied for duration of experiment.
99-1664	Activities were great and easy to follow. I generally used activity or introduction and changed a few things to fit my needs for students.
99-1278	I find most science classroom activities difficult to use at a ratio of 1:25 considering the small amount of time we have.
99-2114	I plan to get tapes from PBS or NASA next year and use them.
99-2162	There were different, more positive results with the experiments when used with my son.
99-1957	At the time we viewed the program, it did not fit well into what we were doing in science. I hope to incorporate the program next year when I will be teaching 6th grade science.
99-2218	A teacher workshop for NASA CONNECT would be helpful
99-1998	I kept thinking of or planning to use the resources provided but didn't. Maybe next time I will plan better.
99-1295	In teaching gifted high school students, I would like access to higher level materials.
99-1897	The lessons had nothing to do with our curriculum; therefore, the lesson was a break from the usual.
99-2387	I adjusted according to grade level.
99-1155	Some students had problems making the wind tunnel and the actual cutting of the cardboard.
99-1531	Please send the videos. I missed the request for them.
99-1643	I love them! They were easy to use and modify to my own curriculum standards and appropriate for our location.



Question: If you did not use the web-based activities for the 1999-2000 NASA CONNECT season, please explain.

SERIAL no.	Question 54 (COMMENT)
99-2006	Had difficulty with our district hardware
99-2193	Access in classes unavailable
99-1209	Web connection in classroom didn't always work, but my daughter (H.S. Science) in Dayton, OH used all the activities, videos, and the web.
99-1553	The California Youth Authority does not allow access to the Internet.
99-1689	See #37.
99-1911	Could not access due to space/facility limitations
99-1668	Limited time on resources
99-1474	We had technology problems in our computer lab. I used it at home but not in the lab with students.
99-1826	Our classrooms just recently received internet access. Now we are ready!
99-1640	Time
99-1345	My school does not have adequate numbers of computers for the online activities.
99-1397	Web site not used - only tapes used
99-1659	Limited internet use due to token ring access
99-1385	Used show on district TV station not in class
99-1111	Could not access it with my computer.
99-1078	I've had trouble with the computers in my classroom all year. They are finally online now!
99-1592	Computer access
99-1956	Did not have enough time to incorporate all material into curriculum, but hope to make adjustments for next year.
99-1895	Didn't apply to curriculum
99-1711	Not enough time in school day
99-2426	No time for others
99-1845	With each class
99-1247	Some we didn't get to, others we didn't have time for or interest in, or not enough computers
99-1428	Computers not working and/or school's internet connection down.
99-2340	I don't have them yet.
99-1517	See Q #37
99-1702	New to program
99-1021	Access to computer was a problem.
99-1319	Did not use because of time constraints and lack of access to more than one computer
99-1569	Computers were down most of this semester.
99-1589	I only have one computer in my classroom that has the Internet. The server at my school never works properly.
99-2376	Our system kept timing out - happens often in the afternoon.
99-1329	My internet connection had technical difficulties.
99-2311	Limited access to the Web

Question: If you did not use the web-based activities for the 1999-2000 NASA CONNECT season, please explain.

99-1436	No access for all my students
99-1324	Not enough time. Planning will integrate activities in the future.
99-2212	Time
99-1568	Plan to study and use next year
99-1694	Haven't had time to look these up
99-1029	Have not used the web site
99-1657	No time
99-1502	I often had trouble getting the links or sites to respond. I would like to use them next time.
99-1487	Did not have time this school year, but would like to use next year.
99-1908	I only have the lesson guides.
99-1148	Did not have Internet in classroom
99-2324	Due to time constraint, I wasn't able to use the web-based activities.
99-1778	Our classrooms are not networked yet, and the lab supervisor is not cooperative.
99-2500	New to program
99-2382	Don't have Internet yet!
99-2049	No access to computer
99-1489	Too many demands on time. The real drive is the state test.
99-1269	Our school is not yet connected to the Internet
99-2309	Our texts only incorporate space. I was previewing for next year.
99-1693	Not enough time for entire class
99-1713	Did not have equipment to explore with class - gave then the URL
99-2041	I had difficulty with the site and having everything come together. Also with the lack of computers in my classroom, I didn't have the resources to pursue it.
99-1520	Lack of time in the classroom because of course content
99-1717	Problem obtaining program
99-2133	Did not fit the curriculum
99-1122	Time
99-1576	Didn't use the activities this year
99-1067	Amount of time in computer lab
99-1691	Some of these units were given to other teachers in the district as it fit their curriculum better.
99-1750	I didn't have time to implement lessons this year.
99-1377	When we are hooked up to the Internet, we will be able to use them. Maybe 1-2 years.
99-1664	I am not connected to the Internet in my classroom.
99-1390	I did not know about the NASA series video. When are they on live? However, my students may have seen them.
99-1831	Still trying to find time to use them
99-2269	Due to late start being connected to Internet and NASA CONNECT, I did not have sufficient time.
99-1200	I would like to do more with the Web-based activities and would like a teacher activity.

Question: If you did not use the web-based activities for the 1999-2000 NASA CONNECT season, please explain.

99-2394	Used segment and portions but not complete activity
99-1575	I did not have the activities for all the programs.
99-2052	Our portable classroom is not wired for online capabilities. With our new addition, all classrooms will have such capabilities. I intend to use next year.
99-1928	I gave it as a type of reward after SOLs.
99-1278	No time and minimal web access.
99-2366	I was not able, due to time constraints, to use the Web-based activity.
99-2114	Didn't have time to look up but hope to
99-1556	Students went to computer lab for these activities. Labs were difficult to schedule due to other school activities.
99-2162	Couldn't find the airplane design, but my computer at home is kind of slow for the Foil Sim program.
99-1279	Too hard to get access to computer lab
99-2159	Plan to use next school year
99-1344	Choose not to participate - we have appropriate hardware
99-1905	Was not aware of
99-2347	Time!!
99-1841	Not enough time and above grade level
99-1719	Time did not permit
99-2400	Experienced computer problems with the Internet
99-2218	No instruction and computer crash-only one computer
99-1451	Because we must share computers and they are never available
99-1996	Didn't receive the video programs so the activities weren't used.
99-2033	No link
99-1897	Not enough time or resources
99-2387	TBD did not work into my curriculum. Kids corner not to grade level
99-2320	Math computer lab not equipped to handle-too old
99-2291	Did not have time to find out about these, and did not get information
99-1789	Computers not running and not enough time in many days
99-2102	Info received too late in the year
99-1873	No time
99-2479	Did not receive in time
99-1949	Not enough internet access in school!
99-1060	I adapt to my program
99-1426	Only one computer in classrooms, but we will have a lot next year.
99-1134	Same
99-2108	Have not had time to explore the web activities due to other work assignments
99-2178	No video for 5-7 and no lesson guides 1-4
99-2407	We don't have internet access at school but will next year.
99-1773	Not enough time to incorporate it into my lessons this year
99-2488	We were referred to these sites by our homeschool area coordinator.
99-1155	Not enough time
99-1830	Too high for my students

Question: If you did not use the web-based activities for the 1999-2000 NASA CONNECT season, please explain.

99-1566	Reviewed them
99-1006	No web access in classroom- not allowed
99-2090	Time
99-1126	Not enough time
99-1357	Did not fit my Language curriculum
99-1266	We are receiving new material.
99-1850	Not enough time
99-1091	Timing did not permit to view all parts - limited computer access
99-2067	I didn't know the activities existed.
99-2216	We do not have the Internet in our classrooms. Hopefully next year
99-2168	There was not enough time to use the activities during class period.
99-1277	Time issue-used with teachers in after school hours workshop
99-1469	There was not enough time
99-1437	Didn't have use of a computer most of the year
99-2034	Didn't find time
99-1405	Not computerized enough in classroom
99-1262	Not enough time in schedule
99-2246	Did not have time or access to computers
99-1429	Did not see the Web-based advertisement
99-1827	Same as question 37
99-2010	No time available for computer lab
99-1776	Lack of time and computers, but I personally looked them over
99-1260	Problems securing computer time for class participation
99-1687	Time constraints in my classroom, plus I need internet access for my classroom computers.
99-2485	Printout was garbled and run together, making words unreadable
99-1643	Just didn't have the time
99-1621	No easy access/ time with the computer lab
99-1087	Lack of time
99-1558	We had trouble with server (network) and internet connection this year. I stayed away from the Web at school for this reason.
99-1014	Did not have internet capability at time
99-1330	No web access
99-1522	No- not enough computers to go around to be practical
99-1028	Internet access in library was not available
99-1658	Difficulty accessing sites from my classroom - computer doesn't have enough memory
99-1018	Will this year with training films

Question: Respondents were asked to mark their present professional duties on a checklist. If the respondent marked "other," she/he was asked to specify the "other" professional duty. The following are the duties generated from the question.

<b>SERIAL no.</b>	<b>Question 100 (COMMENT)</b>
99-2193	USP mentor teacher
99-1826	7th grade instructional specialist
99-1159	home-based instructor
99-1441	department head
99-1956	grade level leader
99-2426	student council advisor
99-2112	youth extension agent
99-1651	JROTC instructor
99-1502	coach, tech. rep.
99-1778	interdisciplinary team leader
99-1717	NASA contact
99-1664	gifted talent resource teacher
99-2162	parent of a home schooler
99-2218	Rice University student
99-1130	department chair
99-1323	science computer coordinator
99-1949	engineering program coordinator 2000-01
99-2108	extension agent
99-1566	math department chair
99-2067	reading teacher grades 1-6
99-1437	math department chair
99-1109	clinical master teacher-interns
99-2246	extension education
99-1785	talented and gifted
99-1874	student teacher
99-1641	web master
99-1330	gifted resource 4-7
99-1658	gifted and talented program K-6
99-1018	director skill/colhge collals.

## Appendix D

### Unsolicited Comments

ID Number	Comment
99-1557	I don't have access to satellite download. I was never able to find out when my PBS station broadcast the programs!
99-1487	Note: I wish I had the time this year to complete this program. I will try to implement it for next year.
99-2128	Would like to receive video but have no idea how. I don't receive the TV station's shows. Please let me know the proper procedure to get the tapes of lessons and activities.
99-1717	We were "without" a technician for most of the year. The teacher who assumed responsibility for the satellite receiver was unable to access these programs. We now have a full-time technician. This summer I will ask him to make accessing NASA TV a priority.
99-1726	Lesson Guide would not print on PC; column sizing on Mac was fine.
99-1305	I apologize for returning this survey booklet so late. I filled out certain sections but did not complete the whole thing because I didn't use your entire program. Between curriculum demands and extra activities, I had planned to be ongoing during the school year. Your program was too time consuming to incorporate fully into the classroom. However, since school has been out, I have been able to sit down and thoroughly go over your program. Unfortunately, I have been unable to pull up the online parts of the lessons before #7. However, I have enjoyed working on lesson 7 and see the many benefits students gain by going through the lesson. I have not taped the videos and was wondering if they will be aired again next year, or, can I purchase them? As a classroom teacher who likes to have many different activities going on during the school year, it is easier for me to look at the entire program first, then plan accordingly. The lesson guides seem a little difficult for fourth grade. However, after going over the online segment of lesson 7, I can see how much easier the lesson becomes.
99-1109	I didn't have resources to tape, and I didn't realize NASA would send them to me! I appreciate your offering these programs, I think our biggest drawback is teacher training, time, and equipment. Thanks!
99-2067	Could you send me information on the program? How do I sign up to receive future material?
99-1886	These programs fit right in with SC's new math, science, and technology standards.
99-1216	I was not able to tape the videos, so I cannot evaluate them.
99-2384	Concerning instructional technology and teaching: Usually teachers are not taught how or don't know how to implement IT correctly or effectively.
99-1830	District won't allow student work, suggestions for resources, or ideas and opinions to be posted on the Web.
99-1531	Please, Let me know how to receive previous videos. I missed the recent program times. Thanks.
99-2373	Did not have a chance to use this year - will use next year
99-2421	Since I never received these videos, I never used the program; therefore, I have not continued to respond to NASA CONNECT questions.
99-1451	This program can even be used in our tech classes. I will use even more next year. The lesson guides were very good.
99-1323	Note: Lack of administrator support is the main issue. Ideas must be followed through and new ideas encouraged. Also, much of NASA's information/programs are not used in my school because they must be individually approved. I also lacked the resources in my room.
99-1776	Please send me any new or upgraded materials/catalogs for this program for school year 2000-2001. What is the cost or loan agreement of videos for this project?
99-1078	Regarding Instructional Programming and Technology in the Classroom: You should adjust the activities to your students' levels and abilities ("differentiation")!

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<b>13. ABSTRACT</b> (Maximum 200 words) NASA CONNECT is a standards-based, integrated mathematics, science, and technology series of 30-minute instructional distance learning (satellite and television) programs for students in grades 6-8. Each of the five programs in the 1999–2000 NASA CONNECT series included a lesson, an educator guide, a student activity or experiment, and a web-based component. In March 2000, a mail (self-reported) survey (booklet) was sent to a randomly selected sample of 1,000 NASA CONNECT registrants. A total of 336 surveys (269 usable) were received by the established cut-off date. Most survey questions employed a 5-point Likert-type response scale. Survey topics included (1) instructional technology and teaching, (2) instructional programming and technology in the classroom, (3) the NASA CONNECT program, (4) classroom use of computer technology, and (5) demographics. About 73% of the respondents were female, about 92% identified "classroom teacher" as their present professional duty, about 90% worked in a public school, and about 62% held a master's degree or master's equivalency. Regarding NASA CONNECT, respondents reported that (1) they used the five programs in the 1999–2000 NASA CONNECT series; (2) the stated objectives for each program were met (4.54); (3) the programs were aligned with the national mathematics, science, and technology standards (4.57); (4) program content was developmentally appropriate for grade level (4.17); and (5) the programs in the 1999–2000 NASA CONNECT series enhanced/enriched the teaching of mathematics, science, and technology (4.51).				
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